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Surface Water Supply of Virginia

BY

G. C. STEVENS

Prepared in Coöperation with the
United States Geological Survey

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1916

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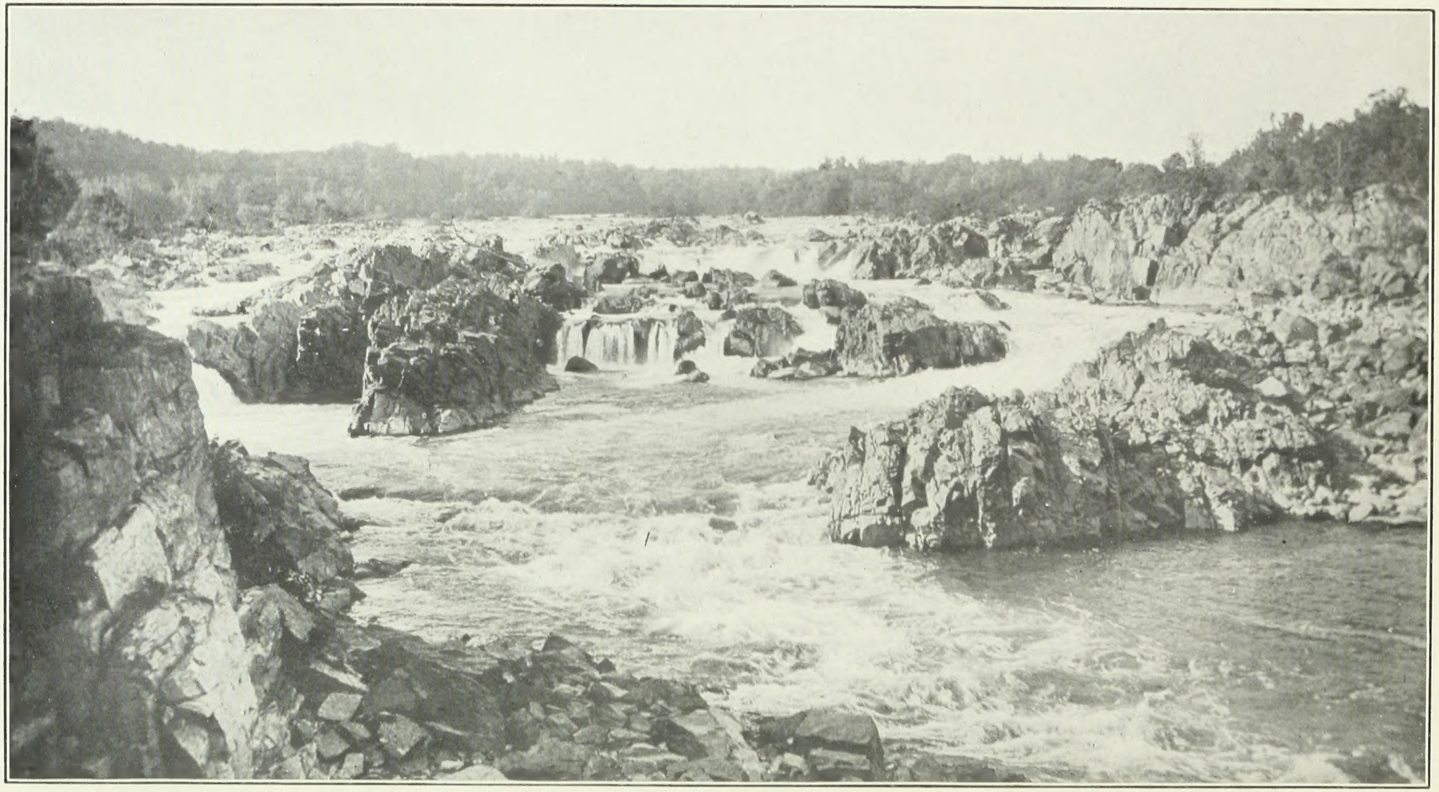

GREAT FALLS OF THE POTOMAC.

VIRGINIA GEOLOGICAL SURVEY
UNIVERSITY OF VIRGINIA
THOMAS LEONARD WATSON, PH. D.
DIRECTOR

Bulletin No. X

Surface Water Supply of Virginia

BY

G. C. STEVENS

PREPARED IN COÖPERATION WITH THE
UNITED STATES GEOLOGICAL SURVEY

CHARLOTTESVILLE
UNIVERSITY OF VIRGINIA
1916

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President of the Virginia-Carolina Railway Company.

Thomas L. Watson,
Director of the Survey.

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LETTER OF TRANSMITTAL

Virginia Geological Survey,
University of Virginia,
Charlottesville, March 31, 1916.

Governor Henry C. Stuart, Chairman, and Members of the State Geological Commission:

Gentlemen:—I have the honor to transmit to you herewith, and to recommend for publication as Bulletin No. X of the Virginia Geological Survey Series of Reports, a manuscript and illustrations of a report on "Surface Water Supply of Virginia," by G. C. Stevens, of the U. S. Geological Survey.

Respectfully submitted,

Thomas L. Watson,
Director.

Surface Water Supply of Virginia

By G. C. Stevens

INTRODUCTION.

This report contains the results of stream-flow investigations made by the United States Geological Survey in Virginia from 1906 to 1914 and forms a continuation of a report entitled "Hydrography of Virginia," prepared by the United States Geological Survey in 1906 and published by the State of Virginia as Geological Series, Bulletin III. The report was prepared from annual water-supply papers, unpublished data in the files of the United States Geological Survey, and data published in "Hydrography of Virginia," and includes the tables of monthly discharge which were published in the report last named, except for stations operated and discontinued prior to 1906. (See Plate V.)

The methods by which the base data were collected are those followed by the United States Geological Survey at current-meter gaging stations and described in standard textbooks. (See Plates II and III.)

DEFINITION OF TERMS.

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those which represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those which represent the actual quantity of water, as run-off in depth in inches, and acre-feet. The units used in this report are second-feet, second-feet per square mile, and run-off in depth in inches. They may be defined as follows:

"Second-foot" is an abbreviation for cubic foot per second and is the unit for the rate of discharge of water flowing in a stream 1 foot wide, 1 foot deep, at a rate of 1 foot a second. It is generally used as a fundamental unit from which others are computed.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off, depth in inches," is the depth to which a drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

The following terms not in common use may be defined as follows:

"Control," "controlling section," and "point of control" are terms used to designate the section or sections of the stream below the gage which determines the discharge relation at the gage. It should be noted that the control may not be the same cross section at all stages.

"Discharge relation" is an abbreviation for the term "relation of gage height to discharge."

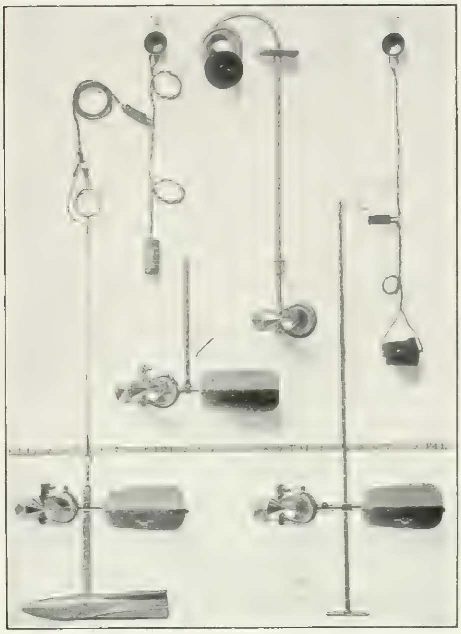
The "point of zero flow" for a given gaging station is that point on the gage—the gage height—to which the surface of the river would fall if there were no flow.

EXPLANATION OF DATA.

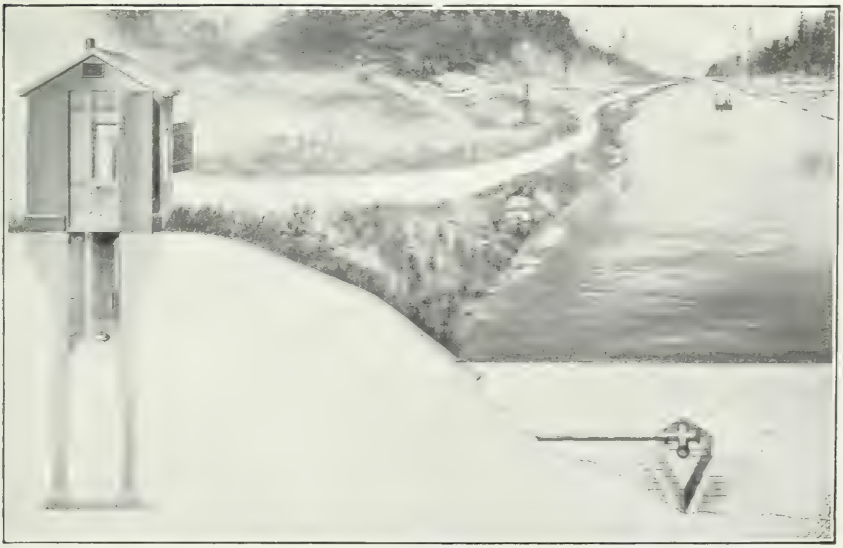
For each gaging station the following data, so far as available, are given: Description of the station, list of discharge measurements, table of daily gage heights, table of daily discharge, table of monthly and yearly discharge and run-off.

In addition to statements regarding the location and equipment of current-meter stations, the descriptions give information in regard to any conditions which may affect the constancy of the relation of gage height to discharge, covering such points as ice, shifting channels, and backwater; also information regarding operation of power plants which may affect the natural distribution of flow. Statements are also made regarding the accuracy of the data.

The table of daily gage height shows the daily fluctuations of the surface of the river, as found from the mean of the gage readings taken each day, usually in the morning and in the evening, though at many stations only one reading is made each day. The gage height given in the table represents the elevation of the surface of the water above the zero of the gage. All gage heights affected by the presence of ice in the streams or by backwater from obstructions are published as recorded, with suitable footnotes. The rating table is not applicable for such periods unless the proper corrections to the gage heights are known and applied. Attention is called to the fact that the zero of the gage is placed at an arbitrary datum and has no relation



A. Price current meters.



B. Typical cable gaging station with automatic gage.

to zero flow or the bottom of the river. In general the zero is located somewhat below the gage height of the lowest known flow, so that negative readings shall not occur.

The discharge measurements and gage heights are the base data from which rating tables, daily discharge tables, and monthly discharge tables are computed.

The rating table gives, either directly or by interpolation, the discharge in second-feet corresponding to every stage of the river recorded during the period for which it is applicable. It is not published in this report, but can be determined from the tables of daily gage heights and daily discharge by plotting gage heights in feet as ordinates and discharge in second-feet as abscissas.

The table of daily discharge, determined from the rating table and daily gage height table, gives the discharges in second-feet corresponding to the observed gage heights as determined from the rating tables.

In the table of monthly discharge the column headed "Maximum" gives the mean flow, as determined from the rating table, for the day when the mean gage height was highest. As the gage height is the mean for the day, it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet for each second during the month. On this the computations for the remaining columns are based.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS.

The accuracy of stream-flow data depends (1) on permanence of the relation between discharge and stage, and (2) on the accuracy of observations of stage, measurements of discharge, and interpretation of data.

In order to give engineers and others information regarding the probable accuracy of the computed results, footnotes are added to the daily discharge tables, stating the probable accuracy of the rating curves used, and an accuracy column is inserted in the monthly discharge table. For the rating curves, "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined" or "approximate," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

The accuracy column in the monthly discharge table does not apply to the maximum or minimum nor to any individual day, but to the monthly mean. It is based on the accuracy of the rating, the probable reliability of the observer, the number of gage readings per day, the range of the fluctuation in stage, and knowledge of local conditions. In this column, A indicates that the mean monthly flow is probably accurate within 5 per cent; B, within 10 per cent; C, within 15 per cent; D, within 25 per cent. Special conditions are covered by footnotes.

ACKNOWLEDGMENTS.

For assistance rendered or records furnished as indicated under "Coöperation" in the station descriptions acknowledgments are due to the United States Forest Service, the United States Weather Bureau, the Potomac Electric Power Co., the Virginia Electrolytic Co., the Spottsylvania Power Co., the Roanoke Railway & Electric Co., and the Virginia Railway & Power Co.

A. For bridge measurement.

B. For wading measurement.

TYPICAL GAGING STATIONS.

STATION RECORDS.

POTOMAC RIVER BASIN.

POTOMAC RIVER AT POINT OF ROCKS, MD.

Location.—At the steel highway bridge at Point of Rocks, about one-third mile below Catoctin Creek, about 6 miles above Monocacy River, and about 30 miles above Great Falls. (See Plate I.)

Drainage area.—9,650 square miles.

Records available.—February 17, 1895, to December 31, 1914.

Gage.—Chain, attached to bridge; read once daily. Datum constant since September 2, 1902; prior to this date datum was 0.45 foot higher than at present. Datum is 200.54 feet above mean sea level.

Discharge measurements.—Made from the bridge.

Channel and control.—Practically permanent. The control is a ledge a few hundred feet below the station, the ledge extending completely across the river except for one relatively unimportant channel.

Extremes of discharge.—Maximum stage recorded 1895-1914: 29.0 feet, March 2, 1902; discharge 218,700 second-feet. Minimum stage recorded: 0.38 foot, September 10, 1914; discharge, 540 second-feet.

Winter flow.—Little affected by ice.

Canal.—The Chesapeake & Ohio canal parallels the Potomac on the Maryland side. The average discharge of the canal is 75 to 100 second-feet. The discharge is not included in the following tables.

Accuracy.—Results excellent except at extreme low water, when conditions for measuring are not good.

Discharge measurements of Potomac River at Point of Rocks, Md., for 1906–1914.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1906				1909			
May 30	R. Follansbee	1.70	3,890	July 13	Bolster and Stevens.	1.19	2,520
Dec. 7[a]	Bolster and Padgett.	1.76	4,450	Oct. 9	Bolster and Mathers.	.54	871
1907				1913			
Mar. 15[b]	R. H. Bolster	16.95	114,000	Aug. 13	Batchelder and Padgett	1.34	3,170
1908				Aug. 29	G. C. Stevens	.98	1,880
Jan. 14[b]	Bolster and Henshaw	15.50	103,000	1914			
May 26[c]	Follansbee and Walters	8.57	43,700	Nov. 7	Stevens and Elwood	.65	1,180

[a] Results not reliable; heavy gale downstream.
[b] Surface velocities observed; coefficient of 0.95 used to reduce to mean velocity.
[c] Surface velocities observed; coefficient of 0.92 used to reduce to mean velocity.

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1906–1914.

[Geo. H. Hickman, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	3.6	3.0	1.9	11.1	3.3	1.8	2.2	1.6	3.7	1.2	2.6	1.9
2	3.4	2.9	1.8	9.6	3.1	1.7	1.9	1.5	3.1	1.2	2.5	1.8
3	3.3	2.7	1.8	7.7	2.8	1.7	2.0	1.5	2.8	1.4	2.3	1.9
4	3.7	2.5	2.0	6.5	2.8	1.6	2.9	4.3	2.6	1.5	2.3	1.7
5	8.0	2.4	4.0	5.5	2.6	1.5	2.6	3.6	2.3	2.2	2.1	1.8
6	8.6	2.2	5.45	5.1	2.5	1.7	2.4	2.8	2.1	2.5	2.1	1.8
7	7.0	2.2	4.5	4.8	2.6	1.9	2.2	2.4	1.9	2.7	2.1	1.85
8	4.8	2.0	3.6	4.8	2.5	1.7	2.0	2.6	1.8	2.6	2.0	1.7
9	4.0	1.9	3.0	4.3	2.4	2.4	1.9	2.8	1.8	2.5	2.0	1.75
10	3.5	1.8	2.7	4.2	2.4	3.0	1.7	3.2	1.7	2.2	1.9	1.8
11	3.1	1.8	2.6	5.5	2.4	2.5	1.5	7.6	1.7	2.0	1.8	2.0
12	2.9	1.9	2.5	5.6	2.2	2.2	1.4	5.7	1.6	1.9	1.8	2.2
13	2.8	1.8	2.3	4.9	2.3	1.8	1.3	4.3	1.6	1.6	1.8	3.5
14	3.0	1.8	2.3	4.0	2.2	1.6	1.2	3.7	1.5	1.5	1.7	3.1
15	3.3	1.9	2.3	5.75	2.0	1.6	1.3	3.0	1.5	1.6	1.8	2.65
16	3.6	1.8	2.4	8.45	2.1	1.6	1.2	5.1	1.4	1.4	1.7	2.7
17	3.7	1.7	2.5	7.5	2.0	1.6	1.2	4.8	1.6	1.4	1.8	2.8
18	4.1	1.6	2.5	6.3	1.8	2.5	1.5	4.2	1.5	1.5	1.8	4.7
19	3.9	1.6	2.6	5.1	1.9	3.2	1.8	3.5	1.4	1.7	1.9	10.0
20	3.5	1.6	2.9	4.5	1.8	2.9	1.7	4.4	1.4	12.5	1.9	7.2
21	3.4	1.7	2.9	4.1	1.6	3.1	1.5	4.0	1.4	16.1	3.0	5.6
22	3.3	1.8	3.1	3.6	1.6	5.0	1.4	5.3	1.3	11.65	4.2	5.2
23	3.2	1.9	3.4	3.3	1.6	4.3	1.5	4.8	1.3	8.5	4.0	4.6
24	3.1	2.0	3.9	3.1	1.4	3.6	2.0	3.7	1.3	6.6	3.3	3.8
25	6.35	2.0	3.9	2.9	1.5	3.1	2.1	4.1	1.3	5.4	3.0	3.2
26	5.1	1.9	3.9	2.9	1.4	2.6	1.9	4.8	1.3	4.5	2.7	2.8
27	4.2	1.8	3.7	2.8	1.3	2.4	1.7	4.6	1.2	4.1	2.6	2.85
28	3.6	2.0	7.8	5.1	1.9	2.3	1.8	6.7	1.2	3.6	2.2	2.9
29	3.4	....	12.9	5.0	1.9	3.1	1.9	6.0	1.2	3.3	2.1	3.0
30	3.2	....	10.5	4.3	1.7	3.0	2.0	5.3	1.2	3.1	2.1	3.1
31	3.1	....	10.9	....	1.7	....	1.7	4.4	....	2.8	....	3.2
1907												
1	7.1	3.0	3.1	3.0	3.2	2.6	2.7	1.7	1.5	2.3	1.2	3.2
2	7.9	2.9	3.6	2.8	3.1	3.2	2.7	1.7	1.4	2.2	1.5	2.9
3	7.0	3.1	4.6	2.7	3.0	14.6	2.6	1.6	1.4	2.2	1.6	2.7
4	5.5	3.0	5.3	2.7	2.9	10.5	2.5	1.6	1.3	2.1	2.5	2.6
5	4.6	2.9	5.8	2.6	2.7	8.7	2.4	1.5	2.5	2.0	2.4	2.4
6	4.0	2.9	4.5	2.5	2.6	6.5	2.2	1.5	2.1	2.0	2.3	2.3
7	3.8	2.8	4.4	2.5	2.6	6.0	2.2	1.4	1.9	1.9	2.3	2.2
8	3.5	2.8	4.0	2.7	2.5	5.1	2.1	1.4	1.8	1.8	2.2	2.1
9	3.4	2.8	3.6	3.8	2.7	5.0	2.0	1.4	1.7	1.7	2.6	2.1
10	3.6	2.8	3.6	9.5	6.05	5.8	1.9	1.5	1.6	1.6	2.5	2.5
11	3.7	3.0	3.5	8.6	7.7	5.6	2.0	1.5	1.6	1.6	2.4	7.0
12	3.7	3.0	3.5	6.5	5.5	5.2	2.5	1.6	1.5	1.6	2.3	7.5
13	5.0	3.0	5.1	5.4	4.8	5.4	2.3	1.7	1.5	1.5	2.2	6.0
14	9.5	3.1	13.4	5.0	4.3	5.2	2.2	1.7	1.6	1.5	2.1	5.2
15	10.7	3.3	17.0	4.5	3.7	6.1	2.0	1.6	1.8	1.5	2.0	4.7
16	9.4	3.4	14.1	4.0	3.5	7.5	1.9	1.6	1.9	1.4	1.9	4.5
17	7.5	3.7	8.6	3.5	3.3	6.6	1.8	1.5	1.7	1.4	1.8	4.3
18	6.9	3.8	7.6	3.4	3.1	6.2	2.0	1.5	1.6	1.4	1.7	4.0
19	6.2	3.9	7.2	3.3	3.0	5.6	2.3	1.5	1.6	1.3	1.8	3.7
20	8.5	3.7	10.3	3.3	2.9	5.1	3.4	1.4	2.0	1.3	2.0	3.3
21	12.0	3.6	12.4	3.2	2.8	4.6	2.9	1.4	2.9	1.3	2.1	3.1
22	9.5	3.4	9.2	3.2	3.0	4.3	2.7	1.4	2.3	1.2	2.2	3.0
23	7.0	3.1	7.9	3.2	2.7	3.6	2.5	1.5	2.9	1.2	2.3	3.0
24	6.2	2.7	6.2	3.3	2.5	3.2	2.2	1.9	3.6	1.2	2.5	4.9
25	5.4	2.6	4.8	4.0	2.6	3.0	2.0	2.0	6.1	1.2	3.8	11.7

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	4.4	2.7	4.4	5.1	2.5	2.9	2.0	2.0	4.2	1.1	6.05	9.0
27	4.2	2.7	4.0	4.5	2.8	2.8	2.1	1.9	3.6	1.1	5.4	6.5
28	3.7	2.9	3.7	4.1	2.9	2.9	2.0	1.8	2.9	1.2	4.6	5.7
29	3.3	....	3.5	3.8	2.8	2.8	2.0	1.7	2.6	1.2	4.0	5.0
30	3.1	....	3.3	3.3	2.7	2.8	1.9	1.6	2.4	1.3	3.5	5.0
31	3.1	....	3.1	....	2.6	....	1.8	1.5	....	1.2	....	5.4
1908												
1	5.0	3.2	3.9	3.4	2.3	4.2	1.7	2.0	1.7	1.6	1.9	1.0
2	4.6	2.8	3.7	4.0	2.3	3.8	1.6	1.8	1.6	1.5	1.8	1.0
3	4.3	2.5	4.7	4.4	2.4	3.4	2.5	1.6	1.5	1.3	1.8	1.0
4	3.8	2.5	8.6	4.1	2.5	3.0	1.6	1.5	1.5	1.3	1.7	1.0
5	3.4	2.5	7.8	3.8	2.6	2.8	1.7	1.4	1.4	1.2	1.6	.9
6	3.3	2.6	8.0	3.7	5.8	3.5	1.7	1.4	1.4	1.2	1.5	.9
7	3.0	2.7	9.0	3.6	8.9	3.4	1.6	1.3	1.3	1.1	1.4	.8
8	2.8	2.8	11.4	3.4	15.0	3.0	1.6	1.3	1.2	1.1	1.3	.9
9	2.7	3.0	11.0	3.4	14.7	2.8	1.5	1.4	1.4	1.1	1.2	1.0
10	2.5	3.1	12.0	3.7	8.6	2.7	1.5	1.4	1.3	1.2	1.2	1.1
11	2.5	2.8	9.1	3.5	6.4	2.7	1.4	1.3	1.3	1.3	1.1	1.1
12	5.5	2.7	7.9	4.0	5.6	2.6	1.4	1.2	1.2	1.2	1.0	1.1
13	19.7	2.8	7.5	4.5	4.9	2.5	1.4	1.2	1.2	1.2	1.0	1.2
14	19.0	3.2	6.5	3.8	4.2	2.4	1.3	1.2	1.1	1.2	1.0	1.2
15	10.4	5.7	5.8	3.5	3.9	2.3	1.3	1.3	1.1	1.0	1.0	1.2
16	7.6	18.8	5.5	3.2	3.6	2.5	1.3	1.2	1.1	1.0	1.0	1.2
17	6.3	18.3	5.1	2.9	3.6	2.4	1.3	2.25	1.0	1.0	1.0	1.2
18	5.6	12.4	4.7	2.9	3.7	2.3	1.2	1.8	1.0	1.0	1.1	1.2
19	5.1	9.5	4.2	2.9	4.6	2.2	1.3	1.6	1.0	.9	1.1	1.1
20	4.5	5.7	7.6	2.7	5.8	2.2	1.3	1.5	.9	.9	1.1	1.2
21	4.2	5.0	7.4	2.7	10.9	2.1	1.3	1.5	.9	1.0	1.1	1.3
22	4.0	4.5	5.8	2.7	11.1	2.1	1.6	1.4	.9	1.0	1.1	1.3
23	4.2	4.1	5.0	2.5	18.1	2.0	2.0	1.3	.8	1.0	1.2	1.4
24	4.8	3.8	4.4	2.6	10.1	2.0	1.7	1.4	.8	1.0	1.2	1.5
25	5.2	3.4	4.2	2.5	8.4	2.0	1.7	1.5	.8	1.0	1.2	1.4
26	5.6	5.2	3.9	2.3	6.5	1.9	2.1	1.8	.8	2.2	1.2	1.4
27	5.0	5.9	3.4	2.4	5.5	1.9	2.5	2.8	.9	2.0	1.1	1.4
28	4.6	5.0	3.3	2.4	5.3	1.8	3.4	2.75	.9	1.8	1.1	1.3
29	4.3	4.1	3.3	2.2	4.8	1.8	3.4	2.4	1.6	1.7	1.1	1.3
30	3.9	....	3.2	2.3	4.4	1.7	3.0	2.1	1.7	1.6	1.1	1.2
31	3.6	....	3.4	....	4.2	....	3.4	1.9	....	1.8	....	1.2
1909												
1	1.4	2.2	4.1	2.3	3.3	2.3	2.6	0.7	0.9	0.78	1.1	0.9
2	1.6	2.0	3.8	2.3	3.2	2.1	2.4	.8	.85	.75	1.05	.95
3	1.6	1.9	3.6	2.2	3.1	2.1	2.1	.9	.8	.7	1.0	.9
4	1.5	1.9	3.5	2.2	3.0	3.25	1.9	.95	.8	.65	.95	.91
5	1.5	1.8	4.1	2.2	2.9	3.0	1.7	1.05	.75	1.0	.85	.95
6	1.9	1.8	3.8	2.2	2.8	2.9	1.6	1.05	.8	.9	.9	.9
7	2.6	1.9	3.7	2.1	2.7	5.0	1.5	1.05	.85	.85	.95	.9
8	2.4	1.9	3.5	2.1	2.6	4.4	1.4	1.0	.9	.8	.9	1.0
9	2.2	2.0	3.4	2.1	2.4	3.5	1.3	.95	.85	.6	.95	1.1
10	2.0	2.2	3.4	2.0	2.3	3.3	1.2	.9	.95	.85	1.05	1.2
11	1.9	3.1	3.3	2.0	2.3	3.7	1.2	1.0	.95	.6	1.0	1.55
12	1.8	4.3	3.3	2.0	2.7	4.6	1.2	1.0	.9	1.05	.95	1.4
13	1.7	4.2	3.3	1.9	2.6	4.2	1.2	.95	.9	.95	.8	1.35
14	1.7	3.7	3.1	2.8	2.5	3.9	1.15	.9	.85	1.1	.85	1.4
15	1.6	3.3	2.9	4.6	2.4	3.4	1.2	.85	.85	1.4	.8	2.45
16	1.7	3.4	2.8	12.25	2.3	3.8	1.2	.98	1.1	1.5	1.05	2.45
17	1.6	3.3	2.7	7.1	2.1	3.4	1.0	1.4	1.15	1.4	.95	2.41
18	2.4	3.5	2.5	5.5	2.1	3.4	1.0	1.2	1.0	1.2	.9	2.2
19	2.3	3.5	2.4	4.4	2.0	4.9	1.0	1.75	1.0	1.15	.95	1.7
20	2.2	3.4	2.3	3.8	2.1	4.4	1.0	1.55	1.0	1.05	.9	1.4

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	2.2	3.4	2.2	3.7	2.1	3.7	.9	1.4	.95	1.0	.95	1.35
22	2.1	3.4	2.1	7.2	2.2	2.8	.9	1.2	1.0	1.0	.95	1.4
23	2.2	3.5	2.1	6.9	4.2	2.5	.9	1.15	.95	.95	1.0	1.4
24	3.0	4.0	2.1	6.8	5.8	2.6	.8	1.1	1.05	.95	1.05	1.35
25	4.2	6.8	2.0	6.6	4.4	2.4	.8	1.05	1.0	1.0	1.0	1.3
26	6.5	6.5	2.0	6.4	3.8	2.2	.8	1.0	.95	1.7	.95	1.35
27	4.3	5.4	2.0	6.0	3.4	2.3	.8	.95	.9	2.0	.85	1.4
28	3.7	4.6	2.1	5.2	3.0	3.5	.8	.9	.9	1.55	.9	1.65
29	3.0	....	2.2	4.4	2.8	3.6	.8	.8	.85	1.3	.9	1.6
30	2.7	....	2.2	3.4	2.6	3.5	.9	.8	.8	1.25	.95	1.4
31	2.4	....	2.3	....	2.5	....	.8	.9	....	.95	....	1.7
1910												
1	1.65	2.5	5.4	1.5	3.6	1.65	2.3	1.2	0.80	0.81	0.80	0.85
2	1.6	2.4	7.1	1.5	3.3	1.6	2.4	1.2	.80	.80	.85	.80
3	1.55	2.2	7.0	1.55	3.0	1.65	2.1	1.25	.81	.80	.81	.75
4	1.35	2.1	6.4	1.6	2.7	1.65	2.0	1.3	1.0	.81	.80	.80
5	1.35	2.2	5.1	1.65	2.4	1.6	2.0	1.4	1.35	.76	.80	.85
6	3.8	2.0	4.6	1.6	2.2	1.8	2.4	1.25	1.3	.80	.82	1.05
7	3.5	2.1	4.0	1.6	2.1	1.75	2.4	1.2	1.2	.76	.77	1.05
8	3.0	2.4	3.7	1.55	2.0	1.7	2.3	1.1	1.15	.85	.76	.95
9	3.3	2.2	3.4	1.55	2.0	1.7	2.6	1.05	1.05	.86	.70	.95
10	3.2	2.1	3.2	1.5	1.95	1.9	2.4	1.0	.96	.80	.81	1.05
11	3.2	2.2	3.0	1.45	1.95	2.1	2.2	.95	.92	.85	.80	1.0
12	3.0	1.8	2.7	1.4	1.95	4.2	2.2	.92	.90	.91	.80	1.0
13	2.6	1.85	2.3	1.4	1.9	6.3	2.3	.91	.90	.85	.75	1.05
14	2.5	1.95	2.3	1.35	1.85	6.8	2.4	.91	.91	.90	.72	1.0
15	2.3	2.0	2.2	1.3	1.8	6.1	2.6	.95	.91	.85	.75	1.0
16	2.4	2.2	2.2	1.3	1.75	5.9	2.4	1.0	.90	.80	.76	1.0
17	2.4	3.3	2.2	1.4	1.7	15.3	2.4	1.05	.90	.81	.80	1.05
18	2.4	8.2	2.2	1.65	1.7	22.0	2.2	.95	.90	.76	.81	1.0
19	4.0	8.6	2.1	4.3	1.65	13.5	2.2	.91	.85	.75	.72	.95
20	4.0	7.0	2.0	4.8	1.65	13.2	3.0	.90	.75	.80	.70	1.0
21	8.0	5.6	1.95	4.5	1.65	10.4	2.3	.91	.80	.80	.75	1.5
22	13.5	4.1	1.9	4.1	1.85	6.9	2.2	.92	.80	.85	.75	1.35
23	10.5	7.8	1.85	3.8	1.75	6.4	2.0	.91	.75	.80	.72	1.15
24	7.2	7.0	1.8	3.5	1.7	4.9	1.75	.91	.76	.75	.70	1.1
25	4.7	5.2	1.75	3.8	1.85	4.0	1.6	.90	.75	.85	.80	1.1
26	3.7	4.0	1.65	7.6	2.2	3.6	1.55	.90	.55	1.05	.95	1.2
27	3.1	3.6	1.6	7.4	2.9	3.4	1.55	.90	.80	.95	.85	1.1
28	3.0	3.65	1.5	6.8	2.4	2.8	1.55	.85	.85	.90	.80	1.05
29	3.0	....	1.5	4.9	2.1	2.6	1.6	.80	.80	.85	.81	1.05
30	3.0	....	1.5	4.1	1.9	2.5	1.25	.80	.80	.80	.81	1.1
31	2.8	....	1.5	....	1.75	....	1.25	.81	....	.81	....	1.2
1911												
1	1.0	10.5	3.1	2.6	2.6	1.25	1.7	0.68	14.6	2.2	1.85	1.9
2	1.85	6.0	3.2	2.6	2.8	1.3	1.4	.63	11.4	2.4	1.8	1.85
3	2.8	5.0	3.0	2.5	2.8	1.25	1.3	.63	5.9	2.1	1.7	1.75
4	7.0	5.0	2.7	2.6	2.8	1.25	1.2	.65	4.0	2.2	1.55	1.8
5	6.5	3.5	2.4	2.8	2.5	1.35	1.1	.95	3.8	3.0	1.4	1.8
6	5.6	3.3	2.3	7.4	2.4	1.3	1.05	1.25	2.6	2.4	1.35	1.65
7	4.1	3.0	2.2	9.5	2.2	1.25	1.0	1.15	2.3	2.2	1.7	1.7
8	3.5	2.8	2.1	7.5	2.1	1.25	1.3	1.1	2.0	1.7	2.7	1.65
9	2.6	2.6	2.0	5.6	2.0	1.35	1.7	.90	1.85	2.0	3.8	1.6
10	2.2	2.5	2.5	5.1	1.95	1.25	1.3	.95	1.7	3.2	3.4	1.55
11	2.1	2.4	2.3	5.0	1.9	1.7	1.45	.95	2.1	2.6	3.0	1.5
12	1.85	2.3	3.0	4.7	1.85	1.65	1.35	.85	2.0	2.3	2.6	1.5
13	1.85	2.3	4.5	4.6	1.75	1.55	1.2	.92	1.85	2.2	2.5	1.5
14	2.0	2.4	4.6	4.6	1.7	1.5	1.2	.65	1.65	2.2	2.4	1.5
15	5.1	2.8	4.7	4.5	1.65	1.5	1.2	.80	1.8	2.1	2.4	1.55

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	4.6	3.3	4.6	4.4	1.6	1.5	1.0	.75	2.1	2.0	2.1	2.0
17	4.0	3.4	4.5	4.0	1.6	1.5	1.3	.70	5.6	1.85	2.1	2.7
18	3.3	3.0	4.3	3.6	1.55	1.15	1.05	.75	4.6	2.6	2.1	5.2
19	2.7	2.8	3.7	3.4	1.5	1.35	.95	.96	3.5	5.0	2.1	4.4
20	2.4	3.0	3.4	3.3	1.45	1.6	.85	.80	2.9	7.1	2.3	3.2
21	2.2	2.6	3.3	3.2	1.4	2.7	.80	.70	2.5	5.1	2.4	2.9
22	2.1	2.6	3.2	3.2	1.35	1.95	.90	.65	2.3	3.8	2.5	2.4
23	2.0	2.4	3.1	3.1	1.35	1.7	.85	.60	2.0	3.6	2.3	1.8
24	2.1	2.4	3.0	3.2	....	1.5	.75	.65	2.0	3.2	2.3	5.0
25	2.2	2.3	2.8	3.2	....	1.35	.85	.70	1.9	2.9	2.2	5.8
26	2.7	2.2	2.6	3.3	....	1.7	.72	.78	1.75	2.7	2.0	5.2
27	2.6	2.8	2.4	3.2	....	1.6	.80	1.2	1.65	2.4	2.2	5.4
28	2.9	3.0	2.4	3.2	....	2.6	.65	1.05	1.55	2.3	2.0	6.5
29	4.4	....	2.5	3.0	1.15	2.35	.45	.90	1.6	2.1	1.95	6.1
30	4.9	....	2.6	2.6	1.1	2.0	.60	1.65	1.55	2.0	1.95	4.9
31	10.2	....	2.5	....	1.1	....	.60	6.0	....	1.9	....	4.4
1912												
1	4.5	3.3	5.9	7.6	3.6	2.3	2.5	2.5	0.86	2.5	1.25	1.05
2	5.2	3.2	4.8	6.7	3.5	2.1	2.3	2.7	1.1	2.3	1.25	1.15
3	5.0	3.2	4.1	5.6	3.4	2.3	2.2	2.6	1.35	2.1	1.2	1.05
4	4.6	3.0	3.6	5.4	3.3	2.1	2.5	1.9	1.5	1.85	1.1	1.1
5	3.8	2.8	3.3	4.9	2.8	2.0	1.9	1.8	1.35	1.65	1.1	1.2
6	2.4	2.8	3.2	4.8	2.7	2.1	1.8	1.55	2.0	1.5	1.15	1.4
7	2.3	2.8	3.0	4.5	2.6	2.2	1.85	1.4	1.3	1.65	1.15	1.45
8	2.1	2.8	2.8	3.8	4.5	2.0	1.95	1.35	1.25	1.55	1.8	1.3
9	1.9	2.6	2.8	3.6	4.6	1.8	1.85	1.6	1.2	1.35	....	1.6
10	4.7	2.5	3.0	3.4	4.0	1.85	1.75	1.45	1.25	1.3	2.6	1.65
11	5.0	2.6	3.2	3.0	3.5	1.65	1.7	1.35	1.15	1.25	2.4	1.7
12	4.9	2.6	3.0	3.0	4.6	1.75	1.8	1.55	1.1	1.15	2.3	1.75
13	4.8	2.6	3.6	2.6	8.8	1.85	1.9	1.6	1.05	1.05	1.8	1.45
14	4.4	2.4	4.4	2.6	11.6	1.6	1.65	1.7	1.15	1.45	1.65	1.3
15	4.4	2.5	5.9	3.0	7.6	1.75	1.95	1.6	.96	1.2	1.6	1.15
16	4.3	2.7	12.0	3.0	6.3	2.6	1.7	1.35	1.0	1.15	1.45	1.45
17	4.3	2.7	13.0	2.9	9.0	2.3	1.65	1.3	.91	1.2	1.45	1.55
18	4.3	2.6	8.7	3.8	11.1	2.4	2.8	1.35	.96	1.05	1.45	1.5
19	4.3	2.9	6.5	4.7	7.0	2.3	2.4	1.25	1.0	1.15	1.4	1.6
20	4.5	3.0	5.8	6.0	6.3	2.3	2.3	1.3	1.0	1.2	1.3	1.55
21	4.0	3.2	5.7	4.8	5.0	2.0	3.0	1.25	.96	1.25	1.2	1.5
22	4.0	4.0	10.4	4.4	4.0	1.85	3.2	1.3	1.05	1.15	1.15	1.35
23	4.9	5.7	9.3	4.0	3.8	1.85	3.5	1.25	1.05	1.2	1.15	1.45
24	4.8	8.2	7.1	3.6	3.5	2.0	3.6	1.2	3.1	1.2	1.1	1.5
25	4.7	6.6	7.9	3.4	3.3	2.2	3.0	1.2	7.4	1.15	1.15	1.45
26	4.7	6.8	8.0	3.2	3.0	2.2	8.8	1.2	7.9	1.05	1.2	1.55
27	4.7	12.6	6.8	3.2	2.9	2.1	5.7	1.2	5.1	1.2	1.05	1.55
28	4.0	13.0	5.9	3.3	2.6	2.1	4.1	1.2	3.5	1.3	1.15	1.6
29	3.9	8.6	6.3	3.4	2.5	2.3	3.1	1.2	3.3	1.25	1.1	1.65
30	3.4	....	9.7	3.5	2.4	2.1	2.9	1.05	2.9	1.2	1.05	1.7
31	3.4	....	9.9	....	2.3	....	2.6	1.1	....	1.25	....	2.8
1913												
1	3.8	2.8	1.45	5.2	2.5	9.4	2.8	1.55	0.85	1.15	2.5	2.2
2	4.4	2.7	1.4	4.6	2.3	6.0	2.5	1.65	.74	....	2.1	1.95
3	6.4	2.8	1.5	4.1	2.2	5.1	1.8	1.85	.92	1.75	2.1	2.0
4	3.9	2.6	1.7	3.8	2.2	4.2	1.7	2.0	.79	1.45	1.95	2.0
5	3.9	2.6	1.65	3.8	2.2	5.6	1.75	1.85	.76	1.2	1.7	2.1
6	3.8	2.6	1.6	3.6	2.2	4.9	1.9	1.85	.78	1.4	1.6	2.0
7	3.6	2.5	1.55	3.0	2.1	4.0	2.0	1.8	.79	1.1	1.55	2.5
8	3.9	2.4	1.55	3.0	2.0	3.2	1.9	1.65	.74	1.05	1.45	3.2
9	5.7	2.5	1.55	2.8	2.0	3.3	1.95	1.6	.89	1.05	1.75	4.1
10	5.3	2.6	1.6	2.8	1.8	2.9	1.6	1.45	.74	1.1	8.9	3.8

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	4.4	2.4	1.55	2.8	1.85	3.1	1.5	1.35	.65	1.05	9.7	3.1
12	4.4	2.5	1.5	2.7	1.7	2.9	2.9	1.45	.66	.84	5.9	2.7
13	4.0	2.3	2.0	3.3	1.65	2.8	2.5	1.3	.73	1.95	4.4	2.6
14	3.9	2.3	3.1	5.0	1.6	2.6	2.4	1.2	.74	1.8	3.2	2.5
15	3.4	2.3	4.9	6.1	1.75	2.3	1.9	1.25	.48	1.6	3.3	2.4
16	3.0	2.2	6.4	6.8	1.6	2.0	1.7	1.25	.78	1.4	4.5	2.2
17	2.9	2.1	6.9	10.8	1.85	2.0	1.55	1.0	.64	1.35	6.2	2.2
18	2.8	2.0	5.2	8.1	2.0	2.7	1.9	1.4	.78	1.4	6.2	1.95
19	3.0	1.95	4.4	5.6	2.3	2.2	2.0	1.6	.74	.93	5.4	1.9
20	2.9	1.95	3.8	5.1	2.4	1.5	1.9	1.2	.89	1.25	5.6	1.8
21	2.6	1.9	3.3	4.5	2.3	1.25	1.8	1.15	.93	1.5	4.4	1.75
22	2.5	1.85	3.2	4.0	2.3	1.45	1.7	1.05	1.2	2.5	3.4	1.9
23	2.4	1.85	2.8	3.6	2.2	1.6	1.55	1.35	1.3	2.9	2.8	2.0
24	2.4	1.85	2.8	3.2	3.0	1.55	1.5	1.2	1.35	2.7	2.4	2.0
25	2.3	1.85	2.2	3.0	9.2	1.35	1.55	1.1	1.65	2.6	3.5	1.95
26	2.5	1.65	2.4	2.9	6.9	2.1	1.4	1.05	1.45	4.5	2.6	2.1
27	2.6	1.55	5.8	3.0	5.2	2.7	1.45	1.1	1.2	8.4	2.3	5.7
28	2.7	1.5	17.5	3.0	10.5	1.55	1.4	1.1	.98	5.9	2.2	4.9
29	2.8	....	16.0	3.0	11.3	2.3	1.35	1.05	.98	4.4	2.1	4.4
30	2.6	....	9.5	2.8	7.7	3.0	1.3	.88	.99	3.4	2.1	3.8
31	2.6	....	6.3	....	6.0	....	1.35	.86	....	2.8	....	3.4
1914												
1	3.0	6.4	3.0	4.8	4.9	1.9	1.6	0.79	1.25	0.77	0.52	0.64
2	....	7.9	2.9	4.6	4.5	1.85	1.5	.87	1.05	.60	.63	.69
3	[illegible]	6.7	2.9	4.5	4.0	1.5	1.4	1.15	1.05	.56	.66	.81
4	7.1	5.4	3.2	4.4	3.7	1.4	1.45	1.25	1.0	.52	.64	.90
5	8.7	4.8	3.3	4.4	3.4	1.35	1.3	.92	.98	.46	.71	.74
6	6.7	4.2	3.1	4.2	4.3	1.4	1.35	.65	.91	.64	.81	1.15
7	5.6	4.9	2.9	4.1	5.5	1.25	1.35	.60	.79	.66	.64	1.55
8	4.9	4.8	3.2	4.0	4.9	1.3	1.45	.49	.70	.46	.65	3.8
9	4.8	4.7	3.2	4.2	3.1	1.35	1.45	.76	.49	.69	.81	4.3
10	4.4	4.6	3.2	4.3	4.6	1.5	1.4	.87	.38	.76	.69	3.8
11	....	4.1	3.1	4.6	4.0	1.45	1.35	.98	.42	.67	.54	3.6
12	6.2	3.9	3.2	3.8	3.9	1.45	1.15	.93	.69	.58	.49	3.5
13	5.7	2.9	3.2	3.6	3.6	1.25	1.35	.87	.64	.56	.45	3.6
14	5.6	2.5	3.3	3.3	3.3	1.15	1.2	.84	.60	.58	.43	2.9
15	4.1	2.2	3.6	3.0	3.0	1.15	1.15	.80	.56	.54	.47	2.8
16	3.6	2.3	3.4	4.1	2.7	1.15	1.05	.83	.71	.47	.58	1.6
17	3.5	2.5	9.1	8.2	2.6	1.05	2.2	.78	.65	.66	.69	1.55
18	3.5	2.5	10.6	7.1	2.6	1.2	2.7	.64	.64	1.1	....	1.45
19	3.2	2.4	11.4	6.2	2.4	1.25	1.8	.92	.56	1.15	1.35	1.55
20	3.1	3.0	8.5	5.1	2.2	1.25	1.7	.76	.59	1.3	1.25	1.55
21	2.8	5.2	6.8	4.9	2.0	1.35	1.6	.82	.63	1.05	1.15	1.7
22	3.2	6.1	5.4	4.7	2.0	1.4	1.4	.85	.69	1.0	1.2	1.8
23	6.4	5.1	5.1	5.5	1.9	1.5	1.1	.71	.57	.98	1.25	1.85
24	5.2	4.3	4.8	5.0	1.9	1.55	.98	.79	.71	.92	1.3	2.4
25	5.4	3.9	4.4	4.2	1.95	1.55	1.2	.8	.76	.79	1.05	2.9
26	....	3.5	4.3	5.5	1.7	1.25	1.3	1.15	.67	.71	.97	3.0
27	6.9	3.6	4.6	8.2	1.4	1.9	1.1	1.05	.63	.97	.89	2.1
28	5.7	3.5	4.4	9.6	1.6	1.6	.96	.98	.57	.99	.87	2.2
29	5.1	....	....	6.7	1.5	1.7	.71	1.15	.53	.98	.83	1.8
30	5.0	....	6.0	5.9	1.6	1.95	.58	1.4	.66	.91	.79	1.9
31	5.3	....	5.1	....	1.5	....	.93	1.5	....	.47	....	1.85

NOTE.—Discharge relation affected by ice during the following periods: Dec. 22, 1909, to Jan. 20, 1910; Jan. 10-29 and Feb. 23-26, 1912. Discharge relation probably not seriously affected by ice at other periods during which ice was present.

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1906–1914.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	11,980	9,070	4,670	64,730	10,480	4,330	5,750	3,700	12,490	2,530	7,330	4,670
2	10,970	8,620	4,330	52,360	9,530	4,010	4,670	3,400	9,530	2,530	6,920	4,330
3	10,480	7,750	4,330	37,780	8,180	4,010	5,020	3,400	8,180	3,100	6,130	4,670
4	12,490	6,920	5,020	29,440	8,180	3,700	8,620	1,570	7,330	3,400	6,130	4,010
5	39,980	6,520	14,070	22,920	7,330	3,400	7,330	11,980	6,130	5,750	5,380	4,330
6	44,500	5,750	22,610	20,440	6,920	4,010	6,520	8,180	5,380	6,920	5,380	4,330
7	32,820	5,750	16,850	18,610	7,330	4,670	5,750	6,520	4,670	7,750	5,380	4,500
8	18,610	5,020	11,980	18,610	6,920	4,010	5,020	7,330	4,330	7,330	5,020	4,010
9	14,070	4,670	9,070	15,710	6,520	6,520	4,670	8,180	4,330	6,920	5,020	4,170
10	11,470	4,330	7,750	15,150	6,520	9,070	4,010	10,000	4,010	5,750	4,670	4,330
11	9,530	4,330	7,330	22,920	6,520	6,920	3,400	37,060	4,010	5,020	4,330	5,020
12	8,620	4,670	6,920	23,560	5,750	5,750	3,100	24,200	3,700	4,670	4,330	5,750
13	8,180	4,330	6,130	19,210	6,130	4,330	2,810	15,710	3,700	3,700	4,330	11,500
14	9,070	4,330	6,130	14,070	5,750	3,700	2,530	12,490	3,400	3,400	4,010	9,530
15	10,480	4,670	6,130	24,520	5,020	3,700	2,810	9,070	3,400	3,700	4,330	7,540
16	11,980	4,330	6,520	43,360	5,380	3,700	2,530	20,440	3,100	3,100	4,010	7,750
17	12,490	4,010	6,920	36,340	5,020	3,700	2,530	18,610	3,700	3,100	4,330	8,180
18	14,610	3,700	6,920	28,120	4,330	6,920	3,400	15,150	3,400	3,400	4,330	18,000
19	13,530	3,700	7,330	20,440	4,670	10,000	4,330	11,470	3,100	4,010	4,670	55,600
20	11,470	3,700	8,620	16,850	4,330	8,620	4,010	16,270	3,100	76,400	4,670	34,200
21	10,970	4,010	8,620	14,610	3,700	9,530	3,400	14,070	3,100	106,000	9,070	23,600
22	10,480	4,330	9,530	11,980	3,700	19,820	3,100	21,680	2,810	69,300	15,200	21,100
23	10,000	4,670	10,970	10,480	3,700	15,710	3,400	18,610	2,810	43,700	14,100	17,400
24	9,530	5,020	13,530	9,530	3,100	11,980	5,020	12,490	2,810	30,100	10,500	13,000
25	28,450	5,020	13,530	8,620	3,400	9,530	5,380	14,610	2,810	22,300	9,070	10,000
26	20,400	4,670	13,530	8,620	3,100	7,330	4,670	18,610	2,810	16,800	7,750	8,180
27	15,150	4,330	12,490	8,180	2,810	6,520	4,010	17,430	2,530	14,600	7,330	8,400
28	11,980	5,020	38,500	20,440	4,670	6,130	4,330	30,780	2,530	12,000	5,750	8,620
29	10,970	....	79,670	19,820	4,670	9,530	4,670	26,140	2,530	10,500	5,380	9,070
30	10,000	....	59,750	15,710	4,010	9,070	5,020	21,680	2,530	9,530	5,380	9,530
31	9,530	....	63,070	....	4,010	....	4,010	16,270	....	8,180	....	10,000
1907												
1	33,500	9,070	9,530	9,070	10,000	7,330	7,750	4,010	3,400	6,130	2,530	10,000
2	39,200	8,620	12,000	8,180	9,530	10,000	7,750	4,010	3,100	5,750	3,400	8,620
3	32,800	9,530	17,400	7,750	9,070	93,800	7,330	3,700	3,100	5,750	3,700	7,750
4	22,900	9,070	21,700	7,750	8,620	59,800	6,920	3,700	2,810	5,380	6,920	7,330
5	17,400	8,620	24,800	7,330	7,750	45,300	6,520	3,400	6,920	5,020	6,520	6,520
6	14,100	8,620	16,800	6,920	7,330	29,400	5,750	3,400	5,380	5,020	6,130	6,130
7	13,000	8,180	16,300	6,920	7,330	26,100	5,750	3,100	4,670	4,670	6,130	5,750
8	11,500	8,180	14,100	7,750	6,920	20,400	5,380	3,100	4,330	4,330	5,750	5,380
9	11,000	8,180	12,000	13,000	7,750	19,800	5,020	3,100	4,010	4,010	7,330	5,380
10	12,000	8,180	12,000	51,600	26,500	24,800	4,670	3,400	3,700	3,700	6,920	6,920
11	12,500	9,070	11,500	44,500	37,800	23,600	5,020	3,400	3,700	3,700	6,520	32,800
12	12,500	9,070	11,500	29,400	22,900	21,100	6,920	3,700	3,400	3,700	6,130	36,300
13	19,800	9,070	20,400	22,300	18,600	22,300	6,130	4,010	3,400	3,400	5,750	26,100
14	51,600	9,530	83,800	19,800	15,700	21,100	5,750	4,010	3,700	3,400	5,380	21,100
15	61,400	10,500	114,000	16,800	12,500	26,800	5,020	3,700	4,330	3,400	5,020	18,000
16	50,800	11,000	89,600	14,100	11,500	36,300	4,670	3,700	4,670	3,100	4,670	16,800
17	36,300	12,500	44,500	11,500	10,500	30,100	4,330	3,400	4,010	3,100	4,330	15,700
18	32,100	13,000	37,100	11,000	9,530	27,500	5,020	3,400	3,700	3,100	4,010	14,100
19	27,500	13,500	34,200	10,500	9,070	23,600	6,130	3,400	3,700	2,810	4,330	12,500
20	43,700	12,500	58,100	10,500	8,620	20,400	11,000	3,100	5,020	2,810	5,020	10,500
21	72,200	12,000	75,500	10,000	8,180	17,400	8,620	3,100	8,620	2,810	5,380	9,530
22	51,600	11,000	49,200	10,000	9,070	15,700	7,750	3,100	6,130	2,530	5,750	9,070
23	32,800	9,530	39,200	10,000	7,750	12,000	6,920	3,400	8,620	2,530	6,130	9,070
24	27,500	7,750	27,500	10,500	6,920	10,000	5,750	4,670	12,000	2,530	6,920	19,200
25	22,300	7,330	18,600	14,100	7,330	9,070	5,020	5,020	26,800	2,530	13,000	69,700

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	16,300	7,750	16,300	20,400	6,920	8,620	5,020	5,020	15,200	2,260	26,500	47,600
27	15,200	7,750	14,100	16,800	8,180	8,180	5,380	4,670	12,000	2,260	22,300	29,400
28	12,500	8,620	12,500	14,600	8,620	8,620	5,020	4,330	8,620	2,530	17,400	24,200
29	10,500	......	11,470	13,000	8,180	8,180	5,020	4,010	7,330	2,530	14,100	19,800
30	9,530	......	10,500	10,500	7,750	8,180	4,670	3,700	6,520	2,810	11,500	19,800
31	9,530	......	9,530	......	7,330	......	4,330	3,400	......	2,530	......	22,300
1908												
1	19,800	10,000	13,500	11,000	6,130	15,200	4,010	5,020	4,010	3,700	4,670	2,000
2	17,400	8,180	12,500	14,100	6,130	13,000	3,700	4,330	3,700	3,400	4,330	2,000
3	15,700	6,920	18,000	16,300	6,520	11,000	6,920	3,700	3,400	2,810	4,330	2,000
4	13,000	6,920	44,500	14,600	6,920	9,070	3,700	3,400	3,400	2,810	4,010	2,000
5	11,000	6,920	38,500	13,000	7,330	8,180	4,010	3,100	3,100	2,530	3,700	1,750
6	10,500	7,330	40,000	12,500	24,800	11,500	4,010	3,100	3,100	2,530	3,400	1,750
7	9,070	7,750	47,000	12,000	46,800	11,000	3,700	2,810	2,810	2,260	3,100	1,520
8	8,180	8,180	67,200	11,000	97,100	9,070	3,700	2,810	2,530	2,260	2,810	1,750
9	7,750	9,070	63,900	11,000	94,600	8,180	3,400	3,100	3,100	2,260	2,530	2,000
10	6,920	9,530	72,200	12,500	44,500	7,750	3,400	3,100	2,810	2,530	2,530	2,260
11	6,920	8,180	48,400	11,500	28,800	7,750	3,100	2,810	2,810	2,810	2,260	2,260
12	22,900	7,750	39,200	14,100	23,600	7,330	3,100	2,530	2,530	2,530	2,000	2,260
13	136,000	8,180	56,200	16,800	19,200	6,920	3,100	2,530	2,530	2,530	2,000	2,530
14	130,000	10,000	29,400	13,000	15,200	6,520	2,810	2,530	2,260	2,530	2,000	2,530
15	58,900	24,200	24,800	11,500	13,500	6,130	2,810	2,810	2,260	2,000	2,000	2,530
16	37,100	129,000	22,900	10,000	12,000	6,920	2,810	2,530	2,260	2,000	2,000	2,530
17	28,100	124,000	20,400	8,620	12,000	6,720	2,810	5,940	2,000	2,000	2,000	2,530
18	23,600	75,500	18,000	8,620	12,500	6,130	2,530	4,330	2,000	2,000	2,260	2,530
19	20,400	51,600	15,200	8,620	17,400	5,750	2,810	3,700	2,000	1,750	2,260	2,260
20	16,800	24,200	37,100	7,750	24,800	5,750	2,810	3,400	1,750	1,750	2,260	2,530
21	15,200	19,800	35,600	7,750	63,100	5,380	2,810	3,400	1,750	2,000	2,260	2,810
22	11,100	16,800	24,800	7,750	64,700	5,380	3,700	3,100	1,750	2,000	2,260	2,810
23	15,200	14,600	19,800	6,920	123,000	5,020	5,020	2,810	1,520	2,000	2,530	3,100
24	18,000	13,000	16,300	7,330	56,400	5,020	4,010	3,100	1,520	2,000	2,530	3,400
25	21,100	11,000	15,200	6,920	43,000	5,020	4,010	3,400	1,520	2,000	2,530	3,100
26	23,600	21,100	13,500	6,130	29,400	4,670	5,380	4,330	1,520	5,750	2,530	3,100
27	19,800	25,500	11,000	6,520	22,900	4,670	6,920	8,180	1,750	5,020	2,260	3,100
28	17,400	19,800	10,500	6,520	21,700	4,330	11,000	7,960	1,750	4,330	2,260	2,810
29	15,700	14,600	10,500	5,750	18,600	4,330	11,000	6,520	3,700	4,010	2,260	2,810
30	13,500	......	10,000	6,130	16,200	4,010	9,070	5,380	4,010	3,700	2,260	2,530
31	12,000	......	11,000	......	15,200	......	6,520	4,670	......	4,330	......	2,530
1909												
1	3,090	5,750	14,600	6,130	10,500	6,130	7,330	1,240	1,740	1,440	2,250	1,740
2	3,700	5,020	13,000	6,130	10,000	5,380	6,520	1,480	1,610	1,360	2,120	1,860
3	3,700	4,670	12,000	5,750	9,530	5,380	5,380	1,740	1,480	1,240	1,990	1,740
4	3,390	4,670	11,500	5,750	9,070	10,200	4,670	1,860	1,480	1,120	1,860	1,760
5	3,390	4,330	14,600	5,750	8,620	9,070	4,010	2,120	1,360	1,990	1,610	1,860
6	4,670	4,330	13,000	5,750	8,180	8,620	3,700	2,120	1,480	1,740	1,740	1,740
7	7,330	4,670	12,500	5,380	7,750	19,800	3,390	2,120	1,610	1,610	1,860	1,740
8	6,520	4,670	11,500	5,380	7,330	16,300	3,090	1,990	1,740	1,480	1,740	1,990
9	5,750	5,020	11,000	5,380	6,520	11,500	2,800	1,860	1,610	1,010	1,860	2,250
10	5,020	5,750	11,000	5,020	6,130	10,500	2,520	1,740	1,860	1,610	2,120	2,520
11	4,670	9,530	10,500	5,020	6,130	12,500	2,520	1,990	1,860	1,010	1,990	3,540
12	4,330	15,700	10,500	5,020	7,750	17,400	2,520	1,990	1,740	2,120	1,860	3,090
13	4,010	15,200	10,500	4,670	7,330	15,200	2,520	1,860	1,740	1,860	1,480	2,940
14	4,010	12,500	9,530	8,180	6,920	13,500	2,380	1,740	1,610	2,250	1,610	3,090
15	3,700	10,500	8,620	17,400	6,520	11,000	2,520	1,610	1,610	3,090	1,480	6,720
16	4,010	11,000	8,180	74,300	6,130	13,000	2,520	1,940	2,250	3,390	2,120	6,720
17	3,700	10,500	7,750	33,500	5,380	11,000	1,990	3,090	2,380	3,090	1,860	6,560
18	6,520	11,500	6,920	22,900	5,380	11,000	1,990	2,520	1,990	2,520	1,740	5,750
19	6,130	11,500	6,520	16,300	5,020	19,200	1,990	4,170	1,990	2,380	1,860	4,010
20	5,750	11,000	6,130	13,000	5,380	16,300	1,990	3,540	1,990	2,120	1,740	3,090

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	5,750	11,000	5,750	12,500	5,380	12,500	1,740	3,090	1,860	1,990	1,860	2,960
22	5,380	11,000	5,380	34,200	5,750	8,180	1,740	2,520	1,990	1,990	1,860	2,790
23	5,750	11,500	5,380	32,100	15,200	6,920	1,740	2,380	1,860	1,860	1,990	2,790
24	9,070	14,100	5,380	31,500	24,800	7,330	1,480	2,250	2,120	1,860	2,120	2,660
25	15,200	31,500	5,020	30,100	16,300	6,520	1,480	2,120	1,990	1,990	1,990	2,530
26	29,400	29,400	5,020	28,800	13,000	5,750	1,480	1,990	1,860	4,010	1,860	2,660
27	15,700	22,300	5,020	26,100	11,000	6,130	1,480	1,860	1,740	5,020	1,610	2,790
28	12,500	17,400	5,380	21,100	9,070	11,500	1,480	1,740	1,740	3,540	1,740	3,460
29	9,070	....	5,750	16,300	8,180	12,000	1,480	1,480	1,610	2,800	1,740	3,330
30	7,750	....	5,750	11,000	7,330	11,500	1,740	1,480	1,480	2,660	1,860	2,790
31	6,520	....	6,130	....	6,920	....	1,480	1,740	....	1,860	....	3,610
1910												
1	2,200	6,920	22,300	3,390	12,000	3,860	6,130	2,520	1,480	1,510	1,480	1,610
2	2,200	6,520	33,500	3,390	10,500	3,700	6,520	2,520	1,480	1,480	1,610	1,480
3	2,200	5,750	32,800	3,540	9,070	3,860	5,380	2,660	1,510	1,480	1,510	1,360
4	2,200	5,380	28,800	3,700	7,750	3,860	5,020	2,800	1,990	1,510	1,480	1,480
5	2,200	5,750	20,400	3,860	6,520	3,700	5,020	3,090	2,940	1,390	1,480	1,610
6	5,000	5,020	17,400	3,700	5,750	4,330	6,520	2,660	2,800	1,480	1,540	2,120
7	6,000	5,380	14,100	3,700	5,380	4,170	6,520	2,520	2,520	1,390	1,410	2,120
8	5,000	6,520	12,500	3,540	5,020	4,010	6,130	2,250	2,380	1,610	1,390	1,860
9	10,000	5,750	11,000	3,540	5,020	4,010	7,330	2,120	2,120	1,640	1,240	1,860
10	3,000	5,380	10,000	3,390	4,840	4,670	6,520	1,990	1,890	1,480	1,510	2,120
11	3,000	5,750	9,070	3,240	4,840	5,380	5,750	1,860	1,790	1,610	1,480	1,990
12	2,500	4,330	7,750	3,090	4,840	15,200	5,750	1,790	1,740	1,760	1,480	1,990
13	2,500	4,500	6,130	3,090	4,670	28,100	6,130	1,760	1,740	1,610	1,360	2,120
14	2,500	4,840	6,130	2,940	4,500	31,500	6,520	1,760	1,760	1,740	1,290	1,990
15	2,500	5,020	5,750	2,800	4,330	26,800	7,330	1,860	1,760	1,610	1,360	1,990
16	2,300	5,750	5,750	2,800	4,170	25,500	6,520	1,990	1,740	1,480	1,390	1,990
17	2,300	10,500	5,750	3,090	4,010	99,600	6,520	2,120	1,740	1,510	1,480	2,120
18	2,300	41,500	5,750	3,860	4,010	155,000	5,750	1,860	1,740	1,390	1,510	1,990
19	3,000	44,500	5,380	15,700	3,860	84,600	5,750	1,760	1,610	1,360	1,290	1,860
20	5,000	32,800	5,020	18,600	3,860	82,200	9,070	1,740	1,360	1,480	1,240	1,990
21	40,000	23,600	4,840	16,800	3,860	58,900	6,130	1,760	1,480	1,480	1,360	3,390
22	84,600	14,600	4,670	14,600	4,500	32,100	5,750	1,790	1,480	1,610	1,360	2,940
23	59,800	38,500	4,500	13,000	4,170	28,800	5,020	1,760	1,360	1,480	1,290	2,380
24	34,200	32,800	4,330	11,500	4,010	19,200	4,170	1,760	1,390	1,360	1,240	2,250
25	18,000	21,100	4,170	13,000	4,500	14,100	3,700	1,740	1,360	1,610	1,480	2,250
26	12,500	14,100	3,860	37,100	5,750	12,000	3,540	1,740	900	2,120	1,860	2,520
27	9,530	12,000	3,700	35,600	8,620	11,000	3,540	1,740	1,480	1,860	1,610	2,250
28	9,070	12,200	3,390	31,500	6,520	8,180	3,540	1,610	1,610	1,740	1,480	2,120
29	9,070	....	3,390	19,200	5,380	7,330	3,700	1,480	1,480	1,610	1,510	2,120
30	9,070	....	3,390	14,600	4,670	6,920	2,660	1,480	1,480	1,480	1,510	2,250
31	8,180	....	3,390	....	4,170	....	2,660	1,510	....	1,510	....	2,520
1911												
1	1,990	59,800	9,530	7,330	7,330	2,660	4,010	1,190	93,800	5,750	4,500	4,670
2	4,500	26,100	10,000	7,330	8,180	2,800	3,090	1,080	67,200	6,520	4,330	4,500
3	8,180	19,800	9,070	6,920	8,180	2,660	2,800	1,080	25,500	5,380	4,010	4,170
4	32,800	19,800	7,750	7,330	8,180	2,520	2,520	1,120	14,100	5,750	3,540	4,330
5	29,400	11,500	6,520	8,180	6,920	2,940	2,250	1,860	13,000	9,070	3,090	4,330
6	23,600	10,500	6,130	35,600	6,520	2,800	2,120	2,660	7,330	6,520	2,940	3,860
7	14,600	9,070	5,750	51,600	5,750	2,660	1,990	2,380	6,130	5,750	4,010	4,010
8	11,500	8,180	5,380	36,300	5,380	2,660	2,800	2,250	5,020	4,010	7,750	3,860
9	7,330	7,330	5,020	23,600	5,020	2,940	4,010	1,740	4,500	5,020	13,000	3,700
10	5,750	6,920	5,020	20,400	4,840	2,660	2,800	1,860	4,010	10,000	11,000	3,540
11	5,380	6,520	6,130	19,800	4,670	4,010	3,240	1,860	5,380	7,330	9,070	3,390
12	4,500	6,130	9,070	18,000	4,500	3,860	2,940	1,610	5,020	6,130	7,330	3,390
13	4,500	6,130	16,900	17,400	4,170	3,540	2,520	1,790	4,500	5,750	6,920	3,390
14	5,020	6,520	17,400	17,400	4,010	3,390	2,520	1,120	3,860	5,750	6,520	3,390
15	20,400	8,180	18,000	16,800	3,860	3,390	2,520	1,480	4,330	5,380	6,520	3,540

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	17,400	10,500	17,400	16,300	3,700	3,390	1,990	1,360	5,380	5,020	5,380	5,020
17	14,100	11,000	16,800	14,100	3,700	3,390	2,800	1,240	23,600	4,500	5,380	7,750
18	10,500	9,070	15,700	12,000	3,540	2,280	2,120	1,360	17,400	7,330	5,380	21,100
19	7,750	8,180	12,500	11,000	3,390	2,940	1,860	1,740	11,500	19,800	5,380	16,300
20	6,520	9,070	11,000	10,500	3,240	3,700	1,610	1,480	8,620	33,500	6,130	10,000
21	5,750	7,330	10,500	10,000	3,090	7,750	1,480	1,240	6,920	20,400	6,520	8,620
22	5,380	7,330	10,000	10,000	2,940	4,840	1,740	1,120	6,130	13,000	6,920	6,520
23	5,020	6,520	9,530	9,530	2,940	4,010	1,610	1,010	5,020	12,000	6,130	4,330
24	5,380	6,520	9,070	10,000	2,850	3,390	1,360	1,120	5,020	10,000	6,130	19,800
25	5,750	6,130	8,180	10,000	2,760	2,940	1,610	1,240	4,670	8,620	5,750	24,800
26	7,750	5,750	7,330	10,500	2,660	4,010	1,240	1,440	4,170	7,750	5,020	21,100
27	7,330	8,180	6,520	10,000	2,570	3,700	1,480	2,520	3,860	6,520	5,750	22,300
28	8,620	9,070	6,520	10,000	2,470	7,330	1,120	2,120	3,540	6,130	5,020	29,400
29	16,800	......	6,920	9,070	2,380	6,520	680	1,740	3,700	5,380	4,840	26,800
30	19,800	......	7,330	7,330	2,250	5,020	1,010	3,860	3,540	5,020	4,840	19,200
31	37,300	......	6,520	......	2,250	......	1,010	26,100	......	4,670	......	16,300
1912												
1	16,800	10,500	25,500	37,100	12,000	6,130	6,920	6,920	1,640	6,920	2,660	2,120
2	21,100	10,000	18,600	30,800	11,500	5,380	6,130	7,750	2,250	6,130	2,660	2,380
3	19,800	10,000	14,000	23,600	11,000	6,130	5,750	7,330	2,940	5,380	2,520	2,120
4	17,400	9,070	17,000	22,300	10,500	5,380	6,920	4,670	3,390	4,500	2,250	2,250
5	13,000	8,180	10,500	19,800	8,180	5,020	4,670	4,330	2,940	3,860	2,250	2,520
6	6,520	8,180	10,000	18,600	7,750	5,380	4,330	3,540	5,020	3,390	2,380	3,090
7	6,130	8,180	9,070	16,800	7,330	5,750	4,500	3,090	2,800	3,860	2,380	3,240
8	5,380	8,180	8,180	13,000	16,800	5,020	4,840	2,940	2,660	3,540	4,330	2,800
9	4,670	7,330	8,180	12,000	17,400	4,330	4,500	3,700	2,520	2,940	5,830	3,700
10	......	6,920	9,070	11,000	14,100	4,500	4,170	3,240	2,660	2,800	7,330	3,860
11	......	7,330	10,000	9,070	11,500	3,860	4,010	2,940	2,380	2,660	6,520	4,010
12	......	7,330	9,070	9,070	17,400	4,170	4,330	3,540	2,250	2,380	6,130	4,170
13	......	7,330	12,000	7,330	19,800	4,500	4,670	3,700	2,120	2,120	4,330	3,240
14	......	6,520	16,300	7,330	68,900	3,700	3,860	4,010	2,380	3,240	3,860	2,800
15	......	6,920	25,500	9,070	37,100	4,170	4,840	3,700	1,890	2,520	3,700	2,380
16	......	7,750	72,200	9,070	28,100	7,330	4,010	2,940	1,990	2,380	3,240	3,240
17	......	7,750	80,500	8,620	47,600	6,130	3,860	2,800	1,760	2,520	3,240	3,540
18	......	7,330	45,300	13,000	64,700	6,520	8,180	2,940	1,890	2,120	3,240	3,390
19	......	8,620	27,400	18,000	32,800	6,130	6,520	2,660	1,990	2,380	3,090	3,700
20	......	9,070	24,800	26,100	28,100	6,130	6,130	2,800	1,990	2,520	2,800	3,540
21	......	10,000	24,200	18,600	19,800	5,020	9,070	2,660	1,890	2,660	2,520	3,390
22	......	14,100	58,900	16,300	14,100	4,500	10,000	2,800	2,120	2,380	2,380	2,940
23	......	18,000	50,000	14,100	12,000	4,500	11,500	2,660	2,120	2,520	2,380	3,240
24	......	20,000	33,500	12,000	11,500	5,020	12,000	2,520	9,530	2,520	2,250	3,390
25	......	24,000	39,200	11,000	10,500	5,750	9,070	2,520	35,600	2,380	2,380	3,240
26	......	26,000	40,000	10,000	9,070	5,750	46,000	2,520	39,200	2,120	2,520	3,540
27	......	77,200	31,500	10,000	8,620	5,380	24,200	2,520	20,400	2,520	2,120	3,540
28	......	80,500	25,500	10,500	7,330	5,380	14,600	2,520	11,500	2,800	2,380	3,700
29	......	44,500	28,100	11,000	6,920	6,130	9,530	2,520	10,500	2,660	2,250	3,860
30	11,000	......	53,200	11,500	6,520	5,380	8,620	2,120	8,620	2,520	2,120	4,010
31	11,000	......	54,800	......	6,130	......	7,330	2,250	......	2,660	......	8,180
1913												
1	13,000	8,180	3,240	21,100	6,920	50,800	8,180	3,540	1,610	2,380	6,920	5,750
2	16,300	7,750	3,090	17,400	6,130	26,100	6,920	3,860	1,340	3,270	5,380	4,840
3	28,800	8,180	3,390	14,600	5,750	20,400	4,330	4,500	1,790	4,160	5,380	5,020
4	13,500	7,330	4,010	13,000	5,750	15,200	4,010	5,020	1,460	3,240	4,840	5,020
5	13,500	7,330	3,860	13,000	5,750	23,600	4,170	4,500	1,390	2,520	4,010	5,380
6	13,000	7,330	3,700	12,000	5,750	19,200	4,670	4,500	1,440	3,090	3,700	5,020
7	12,000	6,920	3,540	9,070	5,380	14,100	5,020	4,330	1,460	2,250	3,540	6,920
8	13,500	6,520	3,540	9,070	5,020	10,000	4,670	3,860	1,340	2,120	3,240	10,000
9	24,200	6,920	3,540	8,180	5,020	11,500	4,840	3,700	1,710	2,120	4,170	14,600
10	21,700	7,330	3,700	8,180	4,330	8,620	3,700	3,240	1,340	2,250	40,800	13,000

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	16,300	6,520	3,540	8,180	4,500	9,530	3,390	2,940	1,080	2,120	53,200	9,530
12	16,300	6,920	3,390	7,750	4,010	8,620	8,620	3,240	1,150	1,580	25,500	7,750
13	14,100	6,130	5,020	10,500	3,860	8,180	6,920	2,800	1,310	4,840	16,300	7,330
14	13,500	6,130	9,530	19,800	3,700	7,330	6,130	2,520	1,340	4,330	10,000	6,920
15	11,000	6,130	19,200	26,800	4,170	6,130	4,670	2,660	748	3,700	10,500	6,520
16	9,070	5,750	28,800	31,500	3,700	5,020	4,010	2,660	1,440	3,090	16,800	5,750
17	8,620	5,380	32,100	62,200	4,500	5,020	3,540	1,990	1,100	2,940	27,500	5,750
18	8,180	5,020	21,100	40,700	5,020	7,750	4,670	3,090	1,440	3,090	27,500	4,840
19	9,070	4,840	16,300	23,600	6,130	5,750	5,020	3,700	1,340	1,810	22,300	4,670
20	8,620	4,840	13,000	20,400	6,520	3,390	4,670	2,520	1,710	2,660	23,600	4,330
21	7,330	4,670	10,500	16,800	6,130	2,660	4,330	2,380	1,810	3,390	16,300	4,170
22	6,920	4,500	10,000	14,100	6,130	3,240	4,010	2,120	2,520	6,920	11,000	4,670
23	6,520	4,500	8,180	12,000	5,750	3,090	3,540	2,940	2,800	8,620	8,180	5,020
24	6,520	4,500	8,180	10,000	9,070	3,540	3,390	2,520	2,940	7,750	6,520	5,020
25	6,130	4,500	5,750	9,070	49,200	2,940	3,540	2,250	3,860	7,330	11,500	4,840
26	6,920	3,860	6,520	8,620	32,100	5,380	3,090	2,120	3,240	16,800	7,330	5,380
27	7,330	3,540	24,800	9,070	21,100	7,750	3,240	2,250	2,520	43,000	6,130	24,200
28	7,750	3,390	118,000	9,070	59,800	3,540	3,090	2,250	1,940	25,500	5,750	19,200
29	8,180	....	105,000	9,070	66,400	6,130	2,940	2,120	1,940	16,300	5,380	16,300
30	7,330	....	51,600	8,180	37,800	9,070	2,800	1,680	1,960	11,000	5,380	13,000
31	7,330	....	28,100	....	26,100	....	2,940	1,640	....	8,180	....	11,000
1914												
1	9,070	28,800	9,070	18,600	19,200	4,670	3,700	1,460	2,660	1,410	834	1,100
2	10,000	39,200	8,620	17,400	16,800	4,500	3,390	1,660	2,120	1,010	1,080	1,220
3	10,500	30,800	8,620	16,800	14,100	3,390	3,090	2,380	2,120	922	1,150	1,510
4	33,500	22,300	5,750	16,300	12,500	3,090	3,240	2,660	1,990	834	1,100	1,740
5	45,300	18,600	10,500	16,300	11,000	2,940	2,800	1,790	1,940	706	1,260	1,340
6	30,800	15,200	9,530	15,200	15,700	2,800	2,940	1,120	1,760	1,100	1,510	2,380
7	23,600	19,200	8,620	14,600	22,900	2,940	3,240	1,010	1,460	1,150	1,100	3,540
8	19,200	18,600	10,000	14,100	19,200	2,800	3,240	769	1,240	706	1,120	13,000
9	18,600	18,000	10,000	15,200	9,530	2,940	3,240	1,390	769	1,220	1,510	15,700
10	16,300	17,400	10,000	15,700	17,400	3,390	3,090	1,660	540	1,390	1,220	13,000
11	21,900	14,600	9,530	17,400	14,100	3,240	2,940	1,940	622	1,170	878	12,000
12	27,500	13,500	10,000	13,000	13,500	2,940	2,380	1,810	1,220	966	769	11,500
13	24,200	8,620	10,000	12,000	12,000	2,660	2,940	1,660	1,100	922	685	12,000
14	23,600	6,920	10,500	10,500	10,500	2,380	2,520	1,580	1,010	966	643	8,620
15	14,600	5,750	12,000	9,070	9,070	2,380	2,380	1,480	922	878	727	8,180
16	12,000	6,130	11,000	14,600	7,750	2,380	2,120	1,560	1,260	727	966	3,700
17	11,500	6,920	48,400	41,500	7,330	2,120	5,750	1,440	1,120	1,150	1,220	3,540
18	11,500	6,920	60,600	33,500	7,330	2,520	7,750	1,100	1,100	2,250	2,080	3,140
19	10,000	6,520	67,200	27,500	6,520	2,660	4,330	1,790	922	2,380	2,940	3,540
20	9,530	9,070	43,700	20,400	5,750	2,660	4,010	1,390	988	2,800	2,660	3,540
21	8,180	21,100	31,500	19,200	5,020	2,940	3,700	1,440	1,080	2,120	2,380	4,010
22	10,000	26,800	22,300	18,000	5,020	3,090	3,090	1,610	1,220	1,990	2,520	4,330
23	28,800	20,400	20,400	22,900	4,670	3,390	2,250	1,260	944	1,940	2,660	4,500
24	21,100	15,700	18,600	19,800	4,670	3,540	1,940	1,460	1,260	1,790	2,800	6,520
25	22,300	13,500	16,300	15,200	4,840	3,540	2,520	1,640	1,390	1,460	2,120	8,620
26	27,200	11,500	15,700	22,900	4,010	2,660	2,800	2,380	1,170	1,260	1,910	9,070
27	32,100	12,000	17,400	41,500	3,090	4,670	2,250	2,120	1,080	1,910	1,710	5,380
28	24,200	11,500	16,300	52,400	3,700	3,700	1,890	1,940	944	1,960	1,660	5,750
29	20,400	....	21,200	30,800	3,390	4,010	1,260	2,280	856	1,940	1,560	4,330
30	19,800	....	26,100	25,500	3,700	4,840	966	3,090	1,150	1,760	1,460	4,670
31	21,700	....	20,400	....	3,390	....	1,810	3,390	....	727	....	4,500

NOTE.—Discharge, except for periods during which discharge relation was affected by ice, determined from a rating curve well defined except at extreme low stages. Estimate of discharge Dec. 22-31, 1909, reduced 10 per cent because of effect of ice. Discharge Jan. 1-20, 1910, and Feb. 23-26, 1912, estimated, because of ice, from climatologic records.

Monthly discharge of Potomac River at Point of Rocks, Md., 1895–1914.

[Drainage area, 9,650 square miles.[a]]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1895						
January						
February 17-28	15,260	5,320	7,413	0.768	0.343	
March	65,980	11,520	24,560	2.54	2.93	
April	67,640	6,200	14,500	1.50	1.67	
May	29,340	7,120	12,540	1.30	1.50	
June	7,580	2,280	4,033	.418	.466	
July	10,500	2,600	4,443	.460	.530	
August	3,300	1,340	1,997	.207	.239	
September	2,600	1,180	1,565	.162	.181	
October	1,340	1,040	1,163	.120	.138	
November	1,540	1,180	1,333	.138	.154	
December	5,320	1,180	2,259	.234	.270	
1896						
January	24,100	1,180	5,257	.545	.628	
February	37,080	2,600	10,470	1.08	1.16	
March						
April						
May 11-31	5,320	1,540	2,560	.265	.207	
June	14,100	1,180	5,429	.562	.627	
July	50,300	2,940	9,288	.962	1.11	
August	9,400	1,540	3,449	.357	.412	
September	[illegible]	1,180	2,175	.225	.251	
October	[illegible]	2,000	12,490	1.29	1.49	
November	30,020	2,000	6,928	.718	.801	
December	12,040	2,000	4,723	.489	.564	
1897						
January	8,540	2,280	4,284	.444	.512	
February	182,200	6,660	42,660	4.42	4.60	
March	[illegible]	11,720	20,850	2.16	2.49	
April	28,000	5,760	10,830	1.12	1.25	
May	94,200	5,760	22,950	2.38	2.74	
June	7,580	4,080	5,997	.621	.693	
July	16,700	2,940	5,315	.551	.635	
August	6,200	[illegible]	4,092	.424	.489	
September	2,940	2,000	2,337	.242	.270	
October	2,600	1,760	1,968	.204	.235	
November	4,480	1,540	2,096	.217	.242	
December	19,260	2,600	6,579	.681	.785	
The year	182,200	1,540	10,830	1.12	14.94	
1898						
January	43,100	3,300	14,660	1.52	1.75	
February	18,100	5,760	8,339	.864	.900	
March	65,150	4,480	15,470	1.60	1.84	
April	57,700	9,020	15,970	1.65	1.84	
May	69,720	6,200	18,060	1.87	2.16	
June	8,060	2,600	4,178	.433	.483	
July	5,760	1,540	2,418	.250	.288	
August	111,400	3,680	22,140	2.29	2.64	
September	3,680	2,000	2,497	.259	.289	
October	86,730	1,760	13,580	1.41	1.63	
November	15,260	5,320	8,557	.886	.988	
December	54,360	6,200	15,330	1.59	1.83	
The year	111,400	1,540	11,780	1.22	16.64	

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[a] 9,654 square miles used previous to 1906.

Monthly discharge of Potomac River at Point of Rocks, Md., 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1899						
January	45,500	8,540	20,870	2.16	2.49	
February	100,800	7,120	28,130	2.91	3.03	
March	115,400	14,160	35,240	3.65	4.21	
April	25,380	5,760	11,750	1.22	1.36	
May	49,140	5,320	11,600	1.20	1.38	
June	16,380	2,940	5,314	.550	.614	
July	7,120	1,540	2,519	.261	.301	
August	3,680	1,540	2,335	.242	.279	
September	3,680	1,760	2,345	.243	.271	
October	2,000	1,540	1,663	.172	.198	
November	9,500	2,000	3,171	.328	.366	
December	12,040	2,000	4,068	.421	.485	
The year	115,400	1,540	10,750	1.11	14.98	
1900						
January	35,620	3,680	8,166	.846	.975	
February	37,820	2,940	13,340	1.38	1.44	
March	50,300	8,540	18,470	1.91	2.20	
April	22,240	5,320	9,295	.963	1.07	
May	7,120	2,940	4,466	.463	.534	
June	48,700	2,600	8,394	.869	.970	
July	7,120	1,540	3,008	.312	.360	
August	3,680	1,340	1,917	.199	.229	
September	2,000	1,040	1,344	.139	.155	
October	2,000	1,180	1,333	.138	.159	
November	46,300	1,040	4,570	.473	.528	
December	29,340	2,280	6,218	.644	.742	
The year	50,300	1,040	6,710	.695	9.36	
1901						
January	21,040	1,760	4,929	.511	.589	
February	6,990	2,280	3,649	.378	.394	
March	80,920	2,280	13,800	1.43	1.65	
April	150,600	7,120	39,750	4.12	4.60	
May	95,860	6,200	26,920	2.79	3.22	
June	48,700	8,060	18,840	1.95	2.18	
July	26,680	4,900	10,720	1.11	1.28	
August	29,440	4,080	8,337	.864	.996	
September	28,000	3,680	7,636	.791	.882	
October	12,040	2,600	4,303	.446	.514	
November	19,840	2,280	4,648	.481	.537	
December	139,700	4,480	25,610	2.65	3.06	
The year	150,600	1,760	14,100	1.46	19.90	
1902						
January	75,110	7,580	17,520	1.81	2.09	
February	200,800	9,020	32,520	3.37	3.51	
March	218,700	14,700	54,410	5.64	6.50	
April	108,700	7,750	28,760	2.99	3.34	
May	9,530	4,670	5,973	.619	.714	
June	4,330	2,530	3,186	.330	.368	
July	4,330	2,000	3,086	.320	.369	
August	4,330	1,515	2,464	.255	.294	
September	2,000	1,295	1,490	.154	.172	
October	5,380	1,515	2,767	.287	.331	
November	11,470	1,750	2,837	.294	.328	
December	54,780	7,330	18,970	1.96	2.26	
The year	218,700	1,295	14,500	1.50	20.28	

Monthly discharge of Potomac River at Point of Rocks, Md., 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	68,880	6,520	17,200	1.78	2.05	
February	49,160	12,490	22,190	2.30	2.40	
March	99,590	9,070	26,730	2.77	3.19	
April	97,930	9,530	28,900	2.99	3.34	
May	9,070	4,330	6,212	.643	.741	
June	73,860	6,520	17,970	1.86	2.08	
July	45,260	4,330	12,760	1.32	1.52	
August	8,620	2,810	4,826	.500	.576	
September	16,850	2,530	4,669	.484	.540	
October	6,130	2,000	3,212	.333	.384	
November	2,810	2,000	2,175	.225	.251	
December	4,010	2,000	2,926	.303	.349	
The year	99,590	2,000	12,480	1.29	17.42	
1904						
January	35,620	3,400	7,287	.755	.870	
February	38,500	8,620	17,480	1.81	1.95	
March	[illegible]	5,380	11,170	1.16	1.34	
April	28,120	3,400	7,406	.767	.856	
May	27,460	5,380	9,362	.970	1.12	
June	28,700	3,100	10,160	1.05	1.17	
July	10,970	2,530	4,510	.467	.538	
August	[illegible]	1,750	2,394	.248	.286	
September	[illegible]	1,295	1,592	.165	.184	
October	[illegible]	900	1,164	.121	.140	
November	1,515	1,090	1,340	.139	.155	
December	5,020	1,515	2,201	.228	.263	
The year	38,500	900	[illegible]	.657	8.87	
1905						
January	17,430	4,670	8,626	.894	1.03	
February	[illegible]	5,020	5,625	.583	.607	
March	63,900	6,520	23,480	2.43	2.80	
April	[illegible]	4,010	6,581	.682	.761	
May	[illegible]	2,810	4,493	.465	.536	
June	32,820	2,810	6,579	.681	.760	
July	[illegible]	3,400	10,190	1.06	1.22	
August	[illegible]	2,810	5,830	.604	.696	
September	[illegible]	2,000	3,205	.332	.370	
October	[illegible]	1,750	2,888	.299	.345	
November	[illegible]	1,750	2,267	.235	.262	
December	[illegible]	3,400	10,640	1.10	1.27	
The year	63,900	1,750	7,534	.780	10.66	
1906						
January	44,500	8,180	15,000	1.55	1.79	
February	9,070	3,700	5,120	.530	.55	
March	79,700	4,550	15,900	1.65	1.90	
April	64,700	8,180	22,400	2.33	2.60	
May	10,500	2,810	5,540	.574	.66	
June	19,800	3,400	7,010	.726	.81	
July	8,620	2,530	4,380	.454	.52	
August	37,100	3,400	15,200	1.58	1.82	
September	12,500	2,530	4,280	.444	.50	
October	106,000	2,530	16,300	1.69	1.95	
November	15,200	4,010	6,340	.657	.73	
December	55,600	4,010	11,000	1.14	1.31	
The year	106,000	2,530	10,700	1.11	15.14	

Monthly discharge of Potomac River at Point of Rocks, Md., 1895-1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
January	72,200	9,530	27,000	2.80	3.23	A.
February	13,500	7,330	9,560	.991	1.03	A.
March	114,000	9,530	30,500	3.16	3.64	A.
April	51,600	6,920	14,900	1.54	1.72	A.
May	37,800	6,920	11,100	1.15	1.33	A.
June	93,800	7,330	23,200	2.40	2.68	A.
July	11,000	4,330	6,010	.623	.72	A.
August	5,020	3,100	3,710	.384	.44	A.
September	26,800	2,810	6,430	.666	.74	A.
October	6,130	2,260	3,550	.368	.42	A.
November	26,500	2,530	7,850	.813	.91	A.
December	69,700	5,380	17,800	1.84	2.12	A.
The year	114,000	2,260	13,500	1.39	18.98	
1908						
January	136,000	6,920	25,400	2.63	3.03	A.
February	129,000	6,920	24,100	2.50	2.70	A.
March	67,200	10,000	28,600	2.96	3.41	A.
April	16,800	5,750	10,200	1.06	1.18	A.
May	97,100	6,130	32,100	3.33	3.84	A.
June	15,200	4,010	7,250	.751	.84	A.
July	11,000	2,530	4,470	.463	.53	A.
August	8,180	2,530	3,880	.402	.46	A.
September	4,010	1,520	2,500	.259	.29	A.
October	5,750	1,750	2,780	.288	.33	A.
November	4,670	2,000	2,670	.277	.31	A.
December	3,400	1,520	2,440	.253	.29	A.
The year	136,000	1,520	12,200	1.26	17.21	
1909						
January	29,400	3,090	6,950	0.720	0.83	A.
February	31,500	4,330	11,300	1.17	1.22	A.
March	14,600	5,020	8,700	.902	1.04	A.
April	74,300	4,670	16,700	1.73	1.93	A.
May	21,800	5,020	8,660	.897	1.03	A.
June	19,800	5,380	11,000	1.14	1.27	A.
July	7,330	1,480	2,700	.280	.32	A.
August	4,170	1,240	2,110	.219	.25	A.
September	2,380	1,360	1,780	.184	.21	A.
October	5,020	1,010	2,190	.227	.26	A.
November	2,250	1,480	1,850	.192	.21	A.
December	6,720	1,740	3,130	.324	.37	B.
The year	74,300	1,010	6,370	.658	8.94	
1910						
January	84,600	2,200	11,700	1.21	1.40	B.
February	44,500	4,330	12,200	1.26	1.31	B.
March	33,500	3,390	9,960	1.03	1.19	A.
April	37,100	2,800	10,100	1.05	1.17	A.
May	12,000	3,860	5,520	.572	.66	A.
June	155,000	3,700	26,400	2.74	3.06	A.
July	9,070	2,660	5,500	.570	.66	A.
August	3,090	1,480	2,000	.207	.24	A.
September	2,940	900	1,740	.180	.20	A.
October	2,120	1,360	1,560	.162	.19	A.
November	1,860	1,240	1,440	.149	.17	A.
December	3,390	1,360	2,090	.217	.25	B.
The year	155,000	900	7,450	.772	10.59	

Monthly discharge of Potomac River at Point of Rocks, Md., 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1911						
January	[illegible]	1,990	12,200	1.26	1.45	A.
February	29,800	[illegible]	11,300	1.17	1.22	A.
March	18,000	5,020	9,670	1.00	1.15	A.
April	51,000	6,920	15,100	1.56	1.74	A.
May	8,180	2,250	4,330	.449	.52	A.
June	[illegible]	2,380	3,690	.382	.43	A.
July	4,010	680	2,160	.224	.26	A.
August	26,100	1,010	2,440	.253	.29	A.
September	[illegible]	3,540	12,600	1.31	1.46	A.
October	[illegible]	4,010	8,510	.882	1.02	A.
November	13,000	2,940	5,970	.619	.69	A.
December	29,400	3,390	10,200	1.06	1.22	A.
The year	93,800	680	8,150	.845	11.45	
1912						
January	[illegible]	4,070	9,450	0.979	1.13	D.
February	[illegible]	[illegible]	16,400	1.70	1.83	C.
March	80,500	8,180	28,700	2.97	3.42	A.
April	37,100	7,330	14,900	1.54	1.72	A.
May	[illegible]	6,130	19,800	2.05	2.36	A.
June	[illegible]	3,700	5,280	.547	.61	A.
July	[illegible]	3,860	8,550	.886	1.02	A.
August	[illegible]	2,120	3,460	.359	.41	A.
September	[illegible]	1,640	6,360	.659	.74	A.
October	6,920	2,120	3,090	.320	.37	A.
November	[illegible]	2,120	3,270	.339	.38	A.
December	8,180	2,120	3,390	.351	.40	A.
The year	80,500	1,640	10,200	1.06	14.39	
1913						
January	28,800	6,130	11,700	1.21	1.40	A.
February	8,180	3,390	5,890	.610	.64	A.
March	118,000	3,090	18,200	1.89	2.18	A.
April	[illegible]	7,750	16,100	1.67	1.86	A.
May	[illegible]	3,700	13,600	1.41	1.63	A.
June	[illegible]	2,660	10,400	1.08	1.20	A.
July	[illegible]	2,800	4,490	.465	.54	A.
August	[illegible]	1,640	3,010	.312	.36	A.
September	[illegible]	748	1,770	.183	.20	B.
October	[illegible]	1,580	6,880	.713	.82	A.
November	[illegible]	[illegible]	13,500	1.40	1.56	A.
December	[illegible]	4,170	8,120	.841	.97	A.
The year	118,000	748	9,490	.983	13.36	
1914						
January	[illegible]	8,180	20,000	2.07	2.39	A.
February	39,200	5,750	15,900	1.65	1.72	A.
March	67,200	5,750	19,300	2.00	2.31	A.
April	52,400	[illegible]	20,900	2.17	2.42	A.
May	[illegible]	3,090	9,600	.995	1.15	A.
June	[illegible]	2,120	3,190	.330	.37	A.
July	[illegible]	[illegible]	3,020	.313	.36	A.
August	3,390	769	1,750	.181	.21	A.
September	2,660	540	1,270	.132	.15	B.
October	2,800	706	1,400	.145	.17	B.
November	2,940	643	1,540	.160	.18	B.
December	15,700	1,100	6,000	.622	.72	A.
The year	67,200	540	8,650	.896	12.15	

NOTE.—Estimates for Jan. 1 to June 17, 1896, the year 1897, and Apr. 16, 1901, to Sept. 1, 1902, subject to error because of uncertainties in gage readings and gage datum. Ice was present in the stream Feb. 11-23, 1902; Dec. 17-23; during parts of January and February, 1904; Jan. 27, 1905, and possibly at other periods previous to 1906. No corrections have been made in the estimates previous to 1906 for effect of ice. Mean discharge Jan. 10-29, 1912, estimated 8,000 second-feet because of ice.

SOUTH RIVER AT BASIC CITY, VA.

Location.—At the highway bridge half a mile below the Chesapeake & Ohio Railway bridge at Basic City, and about half a mile northeast of Waynesboro.

Drainage area.—142 square miles.

Records available.—June 29, 1905, to July 15, 1906.

Gage.—Chain on upstream handrail of bridge; read once daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Both banks subject to overflow, the right bank only during very high water. Current sluggish at ordinary stages. Bed of stream composed of rocks and mud; probably changes during floods.

Extremes of discharge.—Maximum stage recorded: 5.5 feet at 1.30 p. m., December 21, 1905; discharge, 972 second-feet. Minimum stage recorded: 2.0 feet at 1.30 p. m., November 28, 1905; discharge, 7 second-feet.

Winter flow.—River occasionally frozen over for brief periods; discharge relation probably not affected by ice during the period of record.

Regulation.—Operation of flour mills above station causes rapid fluctuation in gage heights at times.

Accuracy.—Results for normal conditions of flow probably reliable except for extreme low stages.

Discharge measurements of South River at Basic City, Va., in 1906.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
April 11	Robert Follansbee	3.25	221
June 14	Follansbee and Padgett	2.69	86

Daily gage height, in feet, of South River at Basic City, Va., for 1906.

[F. J. Bates, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	3.0	3.4	2.8	3.6	2.9	2.75	2.6
2	2.9	3.3	2.8	3.6	2.9	2.7	2.6
3	3.2	3.2	5.3	3.5	2.8	2.6	2.6
4	4.4	3.2	4.9	3.4	2.9	2.6	2.7
5	3.7	3.2	4.0	3.2	2.9	2.5	2.6
6	3.4	3.1	3.8	3.3	2.8	2.4	2.65
7	3.2	3.1	3.5	3.2	3.0	2.6	2.45
8	3.0	3.0	3.5	3.1	3.0	2.6	2.55
9	2.9	2.9	3.3	3.1	2.8	2.5	2.65
10	2.8	2.9	3.0	3.2	2.85	2.5	2.6
11	2.7	2.9	3.1	3.25	2.85	2.4	2.3
12	2.8	2.9	3.1	3.2	2.7	2.5	2.4
13	3.1	2.9	3.1	3.15	2.8	2.6	2.55
14	3.1	2.9	3.0	3.1	2.8	2.7	2.35
15	3.1	2.9	3.1	4.5	2.7	2.6	2.4
16	3.0	2.8	3.2	4.1	2.75	2.6	....
17	3.0	2.7	3.3	3.75	2.8	3.2	....
18	3.1	2.7	3.3	3.55	2.65	2.5	....
19	3.2	2.7	3.3	3.4	2.7	2.8	....
20	3.2	2.7	3.2	3.25	2.7	5.45	....
21	3.1	2.7	3.3	3.25	2.6	4.9	....
22	3.1	2.8	3.2	3.2	2.6	3.45	....
23	4.9	2.8	3.2	3.2	2.6	3.2	....
24	4.4	2.8	3.2	3.1	2.5	3.0	....
25	3.9	2.8	3.1	3.0	2.6	2.9	....
26	3.6	2.8	3.2	3.1	2.6	3.2	....
27	3.6	2.8	3.5	3.05	2.65	2.95	....
28	3.7	2.8	3.7	3.0	2.75	2.85	....
29	3.7	....	3.7	3.0	3.0	2.8	....
30	3.6	....	3.5	2.9	2.7	2.7	....
31	3.5	....	3.8	....	2.75	....	....

NOTE.—Discharge relation probably unaffected by ice.

Daily discharge, in second-feet, of South River at Basic City, Va., for 1905–6.

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							
1	....	72	72	55	41	29	19
2	....	55	91	55	29	12	29
3	....	91	55	55	55	19	41
4	....	72	55	55	29	12	135
5	....	63	55	72	19	19	135
6	....	72	55	29	19	29	112
7	....	159	55	19	41	29	72
8	....	112	55	29	41	29	55
9	....	91	55	41	55	29	55
10	....	159	72	55	41	29	55
11	....	91	72	55	55	12	55
12	....	520	72	55	91	29	72
13	....	537	72	19	29	41	29
14	....	786	91	19	19	29	41
15	....	289	91	19	41	19	29

Daily discharge, in second-feet, of South River at Basic City, Va., for 1905–6—Contd.

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							
16	....	208	135	19	41	12	29
17	....	159	112	72	19	41	55
18	....	135	91	208	72	19	55
19	....	135	91	112	72	29	55
20	....	112	91	91	41	29	55
21	....	112	72	91	29	12	972
22	....	91	72	72	41	29	470
23	....	41	55	41	55	29	407
24	....	55	55	55	41	29	347
25	....	135	55	72	12	12	261
26	....	112	112	55	41	29	208
27	....	112	72	72	55	12	183
28	....	91	55	72	29	7	135
29	55	112	55	41	41	19	347
30	55	91	29	41	41	29	234
31	....	72	29	....	72	....	208

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	159	261	112	318	135	101	72
2	135	234	112	318	135	91	72
3	208	208	897	289	112	72	72
4	572	208	750	261	135	72	91
5	347	208	438	208	135	55	72
6	261	183	377	234	112	41	82
7	208	183	289	208	159	72	48
8	159	159	289	183	159	72	64
9	135	135	234	183	112	55	82
10	112	135	159	208	123	55	72
11	91	135	183	221	123	41	29
12	112	135	183	208	91	55	41
13	183	135	183	195	112	72	64
14	183	135	159	183	112	91	35
15	183	135	183	607	91	72	41
16	159	112	208	470	101	72	....
17	159	91	234	362	112	208	....
18	183	91	234	304	81	55	....
19	208	91	234	261	91	112	....
20	208	91	208	221	91	953	....
21	183	91	234	221	72	750	....
22	183	112	208	208	72	275	....
23	750	112	208	208	72	208	....
24	572	112	208	183	55	159	....
25	407	112	183	159	72	135	....
26	318	112	208	183	72	208	....
27	318	112	289	171	81	147	....
28	347	112	347	159	101	123	....
29	347	....	347	159	159	112	....
30	318	....	289	135	91	91	....
31	289	....	377	....	101	....	....

Note.—Discharge determined from a rating curve fairly well defined between 55 and 470 second-feet.

Monthly discharge of South River at Basic City, Va., for 1905–6.

[Drainage area, 142 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
July	786	41	159	1.12	1.29
August	135	29	70.9	.499	.58
September	208	19	58.2	.410	.46
October	91	12	42.2	.297	.34
November	41	7	23.4	.165	.18
December	972	19	160	1.13	1.30
1906					
January	750	91	258	1.82	2.10
February	261	91	141	.993	1.03
March	897	112	276	1.94	2.24
April	607	135	241	1.70	1.90
May	159	55	106	.746	.86
June	952	41	154	1.08	1.20
July 1-15	91	29	62.5	.440	.24

NOTE.- Results rated as follows: July, August, and December, 1905, and all of 1906, excellent; September, 1905, good; October, 1905, fair; November, 1905, approximate; discharge below 25 second-feet, approximate.

SOUTH FORK OF SHENANDOAH RIVER NEAR FRONT ROYAL, VA.

Location.—About a mile above the highway bridge which is near the Norfolk & Western Railway station, and about 3 miles southwest of Front Royal.

Drainage area.—1,570 square miles.

Records available.—June 26, 1899, to July 7, 1906.

Gage.—Vertical staff spiked to sycamore tree on left bank; high-water staff spiked to a sycamore tree 325 feet upstream; gage read twice daily.

Discharge measurements.—Made from a cable about 800 feet downstream from the low-water gage.

Channel and control.—Left bank overflows; right bank only at extreme stages. Current sluggish. Bed uneven; composed of rock and silt; liable to shift.

Extremes of discharge.—Maximum stage recorded: 23.5 feet, March 1, 1902; discharge, 76,800 second-feet. Minimum stage recorded: 3.4 feet, several times September to December, 1904; discharge, 320 second-feet. A lower discharge, 305 second-feet, is recorded for September 21, 1902, gage height, 3.8 feet. There was a change in rating curves between 1902 and 1904.

Winter flow.—Ice forms at the station and probably affects the discharge relation. No corrections have been applied to computed discharges, however.

Accuracy.—Results probably reliable except for high stages for which they may be 15 to 20 per cent in error.

Discharge measurements of South Fork of Shenandoah River near Front Royal, Va., in 1906 and 1908.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
June 16	Robert Follansbee	4.70	1,070
1908			
January 15	Follansbee and LaRue	9.2	9,030

Daily gage height, in feet, of South Fork of Shenandoah River near Front Royal, Va., for 1906.

[Miss Brentie Johnson, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	5.65	5.43	4.2	7.05	5.22	4.7	5.45
2	5.45	5.3	4.17	6.8	5.1	4.62	5.28
3	5.25	5.2	4.23	6.45	5.0	4.5	5.25
4	6.13	5.1	5.05	6.25	4.95	4.42	5.25
5	8.47	4.85	7.02	5.85	4.9	4.38	4.9
6	7.22	4.82	6.33	5.68	4.85	4.3	4.45
7	6.4	4.9	5.8	5.52	4.88	4.22	4.65
8	6.0	4.73	5.47	5.4	5.0	4.2	4.62
9	5.65	4.65	5.15	5.32	5.1	4.18	4.4
10	5.38	4.5	5.15	5.3	5.05	4.1	4.28
11	5.17	4.52	5.05	5.4	5.0	4.1	4.3
12	5.0	4.45	4.9	5.35	4.9	4.15	4.38
13	5.0	4.4	4.83	5.28	4.8	4.22	5.32
14	5.0	4.4	4.7	5.2	4.78	4.2	4.65
15	5.05	4.43	4.8	6.35	4.6	4.4	4.4
16	5.3	4.32	5.25	7.75	4.62	4.65	4.25
17	5.3	4.4	5.95	6.8	4.52	5.45	....
18	5.3	4.33	5.77	6.38	4.55	5.75	....
19	5.2	4.3	5.8	6.08	4.45	5.35	....
20	5.12	4.3	5.75	5.8	4.4	5.35	....
21	5.0	4.3	5.8	5.55	4.35	6.2	....
22	4.9	4.25	6.1	5.45	4.3	6.9	....
23	4.93	4.22	5.9	5.35	4.28	6.05	....
24	6.8	4.28	5.8	5.25	4.2	5.5	....
25	6.85	4.25	5.6	5.05	4.2	5.35	....
26	6.22	4.25	5.58	5.1	4.2	5.28	....
27	5.75	4.12	5.77	5.35	4.22	5.72	....
28	5.63	4.25	6.75	5.45	4.3	6.15	....
29	5.6	....	7.35	5.4	4.65	5.5	....
30	5.55	....	7.1	5.3	4.4	5.35	....
31	5.55	....	6.9	....	4.72	....	....

Note.—Discharge relation probably unaffected by ice.

Daily discharge, in second-feet, of South Fork of Shenandoah River near Front Royal, Va., for 1906.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	2,140	1,849	670	4,395	1,594	1,060	1,875
2	1,875	1,690	652	3,940	1,460	988	1,666
3	1,630	1,570	691	3,345	1,350	890	1,630
4	2,835	1,460	1,405	3,020	1,300	826	1,630
5	7,354	1,200	4,338	2,420	1,250	796	1,250
6	4,720	1,170	3,148	2,182	1,200	740	850
7	3,260	1,250	2,350	1,966	1,230	684	1,015
8	2,640	1,087	1,901	1,810	1,350	670	988
9	2,140	1,015	1,515	1,714	1,460	658	810
10	1,786	890	1,515	1,690	1,405	610	726
11	1,537	906	1,405	1,810	1,350	610	740
12	1,350	850	1,250	1,750	1,250	640	796
13	1,350	810	1,180	1,666	1,150	684	1,714
14	1,350	810	1,060	1,570	1,132	670	1,015
15	1,405	834	1,150	3,180	970	810	810

Daily discharge, in second-feet, of South Fork of Shenandoah River near Front Royal, Va., for 1906—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
16	1,690	754	1,630	5,795	988	1,015	705
17	1,690	810	2,565	3,940	906	1,875	....
18	1,690	761	2,308	3,228	930	2,280	....
19	1,570	740	2,350	2,700	850	1,750	....
20	1,482	740	2,280	2,350	810	1,750	....
21	1,350	740	2,350	2,005	775	2,940	....
22	1,250	705	2,790	1,875	740	4,120	....
23	1,280	684	2,490	1,750	726	2,715	....
24	3,940	726	2,350	1,630	670	1,940	....
25	4,030	705	2,070	1,405	670	1,750	....
26	2,972	705	2,044	1,460	670	1,666	....
27	2,280	622	2,308	1,750	684	2,238	....
28	2,112	705	3,855	1,875	740	2,865	....
29	2,070	....	4,980	1,810	1,015	1,940	....
30	2,005	....	4,490	1,690	810	1,750	....
31	2,005	....	4,120	....	1,078	....	....

NOTE.—Discharge computed from a rating curve well defined between 320 and 1,690 second-feet.

Monthly discharge of South Fork of Shenandoah River near Front Royal, Va., 1899–1906.

[Drainage area, 1,570 square miles.]

Month	Discharge in second-feet				Run off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1899					
June 26-30	650	547	594	.378	.070
July	950	428	538	.343	.395
August	1,275	350	599	.382	.440
September	2,080	485	759	.484	.540
October	685	455	559	.356	.410
November	6,110	650	1,236	.788	.879
December	3,920	515	1,121	.714	.823
1900					
January	12,800	950	2,265	1.44	1.66
February	8,060	950	2,492	1.59	1.66
March	12.680	1,680	3,551	2.26	2.61
April	3,490	1,120	1,755	1.12	1.25
May	2,010	720	1,160	.739	.852
June	5,890	650	1,708	1.09	1.22
July	1,120	515	776	.495	.571
August	795	400	538	.343	.395
September	1,070	350	499	.318	.355
October	3,920	547	1,042	.664	.765
November	7,005	580	1,285	.819	.914
December	5,150	720	1,417	.903	1.04
The year	12,800	350	1,540	.982	13.29

Monthly discharge of South Fork of Shenandoah River near Front Royal, Va., 1899–1906—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1901					
January	4,655	515	1,366	.871	1.00
February	1,220	580	818	.521	.542
March	11,580	515	1,975	1.26	1.45
April	46,200	1,810	8,374	5.34	5.96
May	40,900	1,680	5,768	3.68	4.24
June	11,720	1,940	4,302	2.74	3.06
July	15,070	1,440	3,912	2.49	2.87
August	6,440	1,075	3,204	2.04	2.35
September	7,580	720	1,825	1.16	1.29
October	9,730	758	2,020	1.29	1.49
November	2,595	650	966	.616	.687
December	43,500	1,220	5,984	3.81	4.39
The year	46,200	515	3,319	2.11	29.33
1902					
January	9,600	1,385	3,730	2.38	2.74
February	54,700	1,330	6,439	4.10	4.27
March	76,800	3,070	9,871	6.29	7.25
April	12,200	1,560	3,826	2.44	2.72
May	3,150	910	1,579	1.01	1.16
June	1,050	650	861	.549	.612
July	1,680	515	754	.481	.554
August	795	400	571	.364	.420
September	2,370	305	531	.338	.377
October	2,370	455	848	.540	.623
November	2,750	455	784	.500	.558
December	6,220	1,440	3,040	1.94	2.24
The year	76,800	305	2,736	1.74	23.52
1903					
January	14,320	1,385	3,859	2.46	2.84
February	7,700	2,445	3,768	2.40	2.50
March	17,390	1,940	5,043	3.21	3.70
April	12,400	2,220	4,494	2.86	3.19
May	2,295	1,030	1,417	.903	1.04
June	13,610	1,560	4,308	2.74	3.06
July	7,225	910	2,338	1.49	1.72
August	2,010	650	1,046	.667	.769
September	5,570	650	1,738	1.11	1.24
October	2,370	650	842	.537	.619
November	870	580	691	.440	.491
December	1,680	580	853	.544	.627
The year	17,390	580	2,533	1.61	21.80
1904					
January	6,650	705	1,293	.824	.950
February	6,110	560	1,649	1.05	1.13
March	5,080	1,060	1,746	1.11	1.28
April	3,940	740	1,486	.947	1.06
May	5,480	1,150	1,875	1.20	1.38
June	3,430	740	1,375	.876	.977
July	6,215	560	1,117	.712	.821
August	1,105	350	613	.391	.451
September	640	320	395	.252	.281
October	368	320	326	.208	.240
November	368	320	329	.210	.234
December	1,150	320	530	.338	.390
The year	6,650	320	1,061	.676	9.19

Monthly discharge of South Fork of Shenandoah River near Front Royal, Va., 1899–1906—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
January	2,005	425	917	.584	.673
February 1-27	6,320	560	1,140	.726	.729
March 5-31	6,870	1,405	3,104	1.98	1.99
April	1,810	740	1,143	.728	.812
May	2,005	560	920	.586	.676
June	9,380	465	1,372	.874	.975
July	5,480	890	2,236	1.42	1.64
August	3,068	560	1,014	.646	.745
September	1,200	417	595	.379	.423
October	474	350	417	.266	.307
November	474	378	425	.271	.302
December	7,024	425	1,476	.941	1.08
1906					
January	7,354	1,250	2,283	1.45	1.67
February	1,849	622	957	.610	.635
March	4,980	652	2,233	1.42	1.64
April	5,795	1,405	2,393	1.52	1.70
May	1,594	670	1,049	.668	.770
June	4,120	610	1,464	.932	1.04
July 1-16	1,875	705	1,139	.725	.431

Note.—Drainage area of 1,569 square miles used previous to 1906. No corrections made for effect of ice during winter months.

SHENANDOAH RIVER AT MILLVILLE, W. VA.

Location.—At a ferry about one-fourth mile above the Baltimore & Ohio Railroad station at Millville, and about 4½ miles above Harper's Ferry and the mouth of the river.

Drainage area.—3,000 square miles.

Records available.—April 15, 1895, to March 31, 1909.

Gage.—Vertical staff spiked to a sycamore tree on the left bank; read once daily.

Discharge measurements.—Made from a cable about 200 feet above the gage.

Channel and control.—Both banks are low and liable to overflow. Current swift and unobstructed. Bed of stream composed of mud and rocks.

Extremes of discharge.—Maximum stage: 19.7 feet, estimated, on October 1, 1896; discharge, 139,700 second-feet. Minimum stage: 0.4 foot in October and November, 1904; discharge, 480 second-feet.

Winter flow.—Discharge relation somewhat affected by ice.

Accuracy.—Results probably reliable for discharges below 15,000 second-feet; above 15,000 second-feet the probable error may be 10 to 15 per cent or, at extreme flood stages, even greater.

Discharge measurements of Shenandoah River at Millville, W. Va., in 1906–1908.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
May 29	Robert Follansbee	1.58	1,790
1908			
January 15[a]	F. F. Henshaw	6.93	18,400

[a] Surface velocities observed; coefficient of 0.9 used to reduce to mean velocity.

Daily gage height, in feet, of Shenandoah River at Millville, W. Va., for 1906–1909.

[W. R. Nicewarner, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	2.7	2.3	1.1	4.75	2.3	1.5	2.0	1.3	3.55	1.45	2.7	1.85
2	2.45	2.2	1.1	4.2	2.2	1.5	1.8	1.4	3.8	1.45	2.5	1.8
3	2.25	2.0	1.2	3.8	2.1	1.4	1.6	1.8	2.7	1.4	2.4	1.75
4	3.4	2.4	2.2	3.4	2.0	1.3	1.3	1.4	2.2	1.7	2.3	1.7
5	5.3	2.0	2.5	3.1	1.95	1.2	2.15	2.5	2.2	2.5	2.2	1.65
6	4.5	1.95	3.5	2.9	1.9	2.1	1.7	2.3	2.0	3.5	2.1	1.7
7	3.6	1.9	2.9	2.7	1.85	1.3	1.55	2.1	1.9	3.1	2.05	1.65
8	3.0	1.8	2.5	2.6	1.8	1.2	1.6	2.0	1.8	2.6	2.0	1.6
9	2.7	1.6	2.3	2.4	2.1	1.2	1.5	2.2	1.65	2.3	1.9	1.55
10	2.45	1.6	2.1	2.45	2.05	1.65	1.35	2.3	1.6	2.05	1.85	1.5
11	2.3	1.75	2.0	2.6	1.9	1.9	1.3	2.0	1.5	1.8	1.8	1.6
12	2.15	1.5	1.9	2.6	1.85	1.5	1.3	2.0	1.5	1.8	1.8	1.65
13	2.0	1.45	1.75	2.45	1.8	1.2	1.3	3.0	1.45	1.65	1.75	1.55
14	2.0	1.3	1.7	2.3	1.7	1.2	1.3	3.4	1.9	1.5	1.75	1.5
15	2.0	1.35	1.7	3.2	1.6	1.2	1.4	3.8	1.6	1.4	1.75	1.4
16	2.2	1.3	1.8	4.7	1.55	2.0	1.3	3.9	1.5	1.4	1.7	1.45
17	2.3	1.3	1.9	4.2	1.4	2.6	1.3	3.2	1.35	1.4	1.65	1.7
18	2.25	1.2	2.6	3.6	1.35	2.1	1.3	4.1	1.3	1.5	1.6	4.2
19	2.2	1.2	2.7	3.2	1.45	3.8	1.4	3.35	1.35	4.1	1.8	4.5
20	2.1	1.2	2.7	2.95	1.4	2.4	1.5	4.2	1.3	11.3	2.25	4.0
21	2.0	1.2	2.7	2.7	1.3	2.7	1.4	3.9	1.25	12.8	4.3	3.5
22	1.9	1.2	2.9	2.5	1.25	4.8	1.3	3.4	1.2	8.3	3.8	3.6
23	1.8	1.2	3.15	2.4	1.2	3.7	1.2	3.3	1.2	6.5	3.85	3.4
24	1.8	1.2	3.1	2.25	1.2	2.9	2.0	4.0	1.2	5.7	2.9	3.0
25	3.8	1.15	2.9	2.1	1.15	2.5	1.6	4.5	1.1	4.9	2.7	2.6
26	3.2	1.1	2.9	2.0	1.1	2.15	1.5	4.5	1.25	4.2	2.7	2.2
27	2.7	1.1	3.0	2.0	1.2	2.4	1.4	3.8	1.25	3.8	2.25	2.0
28	2.5	1.1	4.8	3.4	1.3	3.5	1.4	5.4	1.25	3.5	2.15	2.4
29	2.4	....	4.9	2.9	1.5	3.25	1.4	4.7	1.25	3.2	2.1	2.4
30	2.4	....	4.6	2.5	1.4	2.4	1.5	5.0	1.35	3.0	2.0	2.25
31	2.5	....	4.6	....	1.4	....	1.3	4.2	....	2.8	....	2.2
1907												
1	2.8	2.25	2.2	....	....	....	2.0	1.2	1.15	2.15	1.0	2.4
2	4.1	2.1	2.3	....	....	....	2.0	1.2	1.0	2.0	1.0	2.2
3	3.6	2.25	2.3	....	....	....	2.2	1.15	1.1	1.4	1.1	2.0
4	3.25	2.4	2.8	....	....	....	2.0	1.15	1.1	1.3	1.1	1.9
5	3.0	2.4	2.7	....	....	....	1.8	1.15	1.6	1.2	1.3	1.8
6	2.9	2.0	2.6	....	....	....	1.7	1.1	2.3	1.6	1.4	1.75
7	2.7	1.85	2.5	....	....	....	1.7	1.1	1.5	1.5	1.3	1.7
8	2.5	2.0	2.3	....	....	....	1.6	1.0	1.2	1.5	1.25	1.65
9	2.5	2.0	2.3	....	....	....	1.6	1.15	1.1	1.45	1.1	1.65
10	2.4	2.3	2.25	....	....	....	1.55	1.1	1.0	1.4	1.05	1.8
11	2.4	2.3	2.8	....	....	....	1.6	1.15	1.2	1.35	1.0	4.5
12	2.4	2.25	2.3	....	....	....	1.6	2.2	1.6	1.3	1.0	4.2
13	2.4	2.6	3.1	....	....	....	1.55	1.15	2.3	1.4	1.2	3.8
14	2.85	2.4	3.7	....	....	....	1.5	1.25	2.0	1.3	1.2	3.4
15	3.1	2.7	4.0	....	....	....	1.4	1.2	1.7	1.2	1.2	3.1
16	3.4	2.8	3.8	....	....	....	1.4	1.1	1.5	1.2	1.2	2.95
17	3.4	2.8	3.5	....	....	....	1.3	1.25	1.3	1.2	1.2	3.0
18	3.5	2.7	3.1	....	....	....	1.5	1.1	1.1	1.2	1.2	2.9
19	3.5	2.6	3.0	....	....	....	1.5	1.1	1.0	1.1	1.15	2.75
20	4.5	2.5	3.35	....	....	....	1.5	1.1	1.2	1.1	1.15	2.6
21	5.3	2.5	3.0	....	....	....	1.5	1.2	1.2	1.1	1.2	2.4
22	4.1	2.4	3.0	....	....	....	2.0	1.3	1.4	1.05	1.3	2.3
23	3.55	2.25	2.9	....	....	....	1.5	1.3	1.4	1.1	1.5	2.3
24	3.2	2.1	2.7	....	....	....	1.45	1.25	3.4	1.05	2.0	5.9
25	3.0	2.1	2.5	....	....	....	1.4	1.45	6.8	1.0	3.6	6.8

Daily gage height, in feet, of Shenandoah River at Millville, W. Va., for 1906–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	2.8	2.1	2.4	......	......	......	1.35	2.0	3.9	1.0	4.6	5.5
27	2.7	2.1	2.3	......	......	......	1.3	1.55	2.9	1.0	3.8	4.4
28	2.5	2.2	2.25	......	......	......	1.3	1.4	2.5	1.0	3.2	3.5
29	2.4	......	2.2	......	......	......	1.3	1.3	2.3	1.0	2.9	3.2
30	2.4	......	2.0	......	......	......	1.3	1.2	2.2	1.0	2.6	3.0
31	2.3	......	2.0	......	......	......	1.25	1.2	......	1.0	......	2.85
1908												
1	2.75	2.6	3.2	2.3	1.45	3.2	1.5	1.6	2.5	1.6	2.8	1.15
2	2.7	2.4	3.4	2.4	1.45	2.8	1.5	1.4	1.8	1.4	2.4	1.15
3	2.6	2.2	4.0	2.45	1.45	2.5	2.0	1.2	1.65	1.2	2.1	1.2
4	2.45	2.1	4.3	2.45	1.5	2.3	1.6	1.1	1.5	1.15	1.9	1.1
5	2.35	2.05	4.1	2.4	1.6	3.3	1.6	1.15	1.4	1.05	1.7	1.05
6	2.3	2.0	3.9	2.35	1.8	3.4	1.6	1.1	1.45	1.0	1.6	1.1
7	2.25	2.1	4.5	2.3	2.75	3.3	1.5	1.1	1.5	1.0	1.55	1.1
8	2.25	2.4	4.4	2.3	4.9	2.9	1.5	1.1	1.45	1.0	1.5	1.05
9	2.3	2.4	4.2	2.25	4.2	2.6	1.55	1.4	1.4	1.0	1.4	1.15
10	2.25	2.2	4.0	2.15	4.0	2.6	1.4	1.2	1.4	.9	1.3	1.1
11	2.2	2.1	3.7	2.0	3.4	2.55	1.4	1.1	1.35	1.0	1.35	1.0
12	3.2	2.2	3.5	2.0	2.9	2.5	1.3	1.2	1.25	1.2	1.2	1.15
13	12.0	2.5	3.3	1.95	2.7	2.35	1.3	1.2	1.15	1.1	1.15	1.1
14	9.7	2.95	3.2	1.9	2.4	2.2	1.25	1.2	1.1	1.15	1.1	1.1
15	6.6	6.5	3.0	1.85	2.3	2.1	1.2	1.1	1.05	1.0	1.2	1.1
16	5.4	10.0	2.85	1.85	2.15	2.4	1.1	1.0	1.0	.95	1.25	1.1
17	4.6	7.8	2.75	1.8	2.0	4.0	1.0	1.1	1.0	.9	1.2	1.1
18	4.0	5.7	2.7	1.8	2.0	2.8	1.0	1.6	.95	.85	1.2	1.05
19	3.8	4.5	2.7	1.75	3.2	2.4	1.0	1.3	.9	.8	1.2	1.0
20	3.5	4.0	2.8	1.8	3.3	2.2	1.0	1.2	1.0	.9	1.15	1.0
21	3.4	3.7	2.75	1.55	4.4	2.0	1.0	1.1	.95	.85	1.3	1.0
22	3.35	3.4	2.7	1.65	9.4	2.1	1.0	1.0	.9	.85	1.4	1.0
23	3.3	3.2	2.7	1.6	8.5	1.9	1.0	1.0	.85	.8	1.5	1.05
24	3.2	3.0	2.6	1.6	7.4	1.9	1.1	.95	.85	.85	1.3	1.0
25	3.1	2.9	2.5	1.6	5.7	1.8	1.3	1.0	.85	1.2	1.3	1.0
26	3.0	3.0	2.4	1.55	4.7	1.8	2.9	2.3	.9	3.6	1.25	1.0
27	2.95	3.7	2.35	1.55	4.85	1.75	2.6	4.4	.9	2.5	1.25	1.1
28	2.95	3.5	2.4	1.5	3.9	1.7	2.4	4.2	.9	2.2	1.2	1.2
29	2.9	3.3	2.3	1.5	3.4	1.6	2.7	4.0	2.0	2.2	1.2	1.2
30	2.7	......	2.25	1.5	3.6	1.5	2.4	3.5	1.9	1.85	1.2	1.2
31	2.65	......	2.3	......	3.4	......	2.0	3.2	......	3.3	......	1.3

Day	Jan.	Feb.	Mar.	Day	Jan.	Feb.	Mar.
1909				1909			
1	1.5	2.2	3.0	16	2.0	2.6	2.2
2	2.35	2.1	2.8	17	2.2	2.6	2.1
3	2.3	2.0	2.8	18	2.3	2.5	2.0
4	2.0	2.0	3.0	19	2.5	2.5	1.95
5	2.0	1.9	3.1	20	2.4	2.5	1.9
6	2.0	1.8	2.9	21	2.3	2.9	1.8
7	3.0	1.8	2.85	22	2.2	2.95	1.8
8	2.9	1.8	2.8	23	2.5	2.9	1.75
9	2.5	1.8	2.75	24	4.7	3.5	1.75
10	2.3	2.0	2.6	25	5.1	3.6	1.7
11	2.0	3.5	2.65	26	4.5	3.8	1.7
12	2.0	4.5	2.55	27	3.2	3.55	1.8
13	1.95	3.7	2.5	28	3.0	3.3	2.0
14	1.8	3.2	2.4	29	2.8	......	2.2
15	1.8	2.9	2.3	30	2.6	......	2.1
				31	2.5	......	2.0

Daily discharge, in second-feet, of Shenandoah River at Millville, W. Va., for 1906–1909.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	3,730	2,940	1,090	9,370	2,940	1,580	2,380	1,320	5,700	1,520	3,730	2,120
2	3,230	2,750	1,090	7,560	2,750	1,580	2,030	1,450	6,380	1,520	3,330	2,030
3	2,845	2,380	1,200	6,380	2,560	1,450	1,720	2,030	3,730	1,450	3,130	1,950
4	5,320	2,380	2,750	5,320	2,380	1,520	1,320	1,450	2,750	1,870	2,940	1,870
5	11,400	2,380	3,330	4,600	2,290	1,200	2,660	3,330	2,750	3,330	2,750	1,800
6	8,520	2,290	5,570	4,150	2,200	2,560	1,870	2,940	2,380	5,570	2,560	1,870
7	5,830	2,200	4,150	3,730	2,115	1,320	1,650	2,560	2,200	4,600	2,470	1,800
8	4,370	2,030	3,330	3,530	2,030	1,200	1,720	2,380	2,030	3,530	2,380	1,720
9	3,730	1,720	2,940	3,130	2,560	1,200	1,580	2,750	1,800	2,940	2,200	1,650
10	3,230	1,720	2,560	3,230	2,470	1,795	1,380	2,940	1,720	2,470	2,120	1,580
11	2,940	1,950	2,380	3,530	2,200	2,200	1,320	2,380	1,580	2,030	2,030	1,720
12	2,655	1,580	2,200	3,530	2,115	1,580	1,320	2,380	1,580	2,030	2,030	1,800
13	2,380	1,515	1,950	3,230	2,030	1,200	1,320	4,370	1,520	1,800	1,950	1,650
14	2,380	1,320	1,870	2,940	1,870	1,200	1,320	5,320	2,200	1,580	1,950	1,580
15	2,380	1,385	1,870	4,840	1,720	1,200	1,450	6,380	1,720	1,450	1,950	1,450
16	2,750	1,320	2,030	9,200	1,650	2,380	1,320	6,670	1,580	1,450	1,870	1,520
17	2,940	1,320	2,200	7,560	1,450	3,530	1,320	4,840	1,380	1,450	1,800	1,870
18	2,845	1,200	3,530	5,830	1,385	2,560	1,320	7,260	1,320	1,580	1,720	7,560
19	2,750	1,200	3,730	4,840	1,515	6,380	1,450	5,200	1,380	7,260	2,030	8,520
20	2,560	1,200	3,730	4,260	1,450	3,130	1,580	7,560	1,320	47,600	2,840	6,960
21	2,380	1,200	3,730	3,730	1,320	3,730	1,450	6,670	1,260	60,800	7,880	5,570
22	2,200	1,200	4,150	3,330	1,260	9,540	1,320	5,320	1,200	25,800	6,380	5,830
23	2,030	1,200	4,720	3,130	1,200	6,100	1,200	5,080	1,200	16,500	6,520	5,320
24	2,030	1,200	4,600	2,845	1,200	4,150	2,380	6,960	1,200	13,000	4,150	4,370
25	6,380	1,145	4,150	2,560	1,145	3,330	1,720	8,520	1,090	9,900	3,730	3,530
26	4,840	1,090	4,150	2,380	1,090	2,655	1,580	8,520	1,260	7,560	3,730	2,750
27	3,730	1,090	4,370	2,380	1,200	3,130	1,450	6,380	1,260	6,380	2,840	2,380
28	3,330	1,090	9,540	5,320	1,320	5,570	1,450	11,800	1,260	5,570	2,660	3,130
29	3,130	......	9,900	4,150	1,580	4,960	1,450	9,200	1,260	4,840	2,560	3,130
30	3,130	......	8,860	3,330	1,450	3,130	1,580	10,300	1,380	4,370	2,380	2,840
31	3,330	......	8,860	......	1,450	......	1,320	7,560	......	3,940	......	2,750
1907												
1	3,940	2,840	2,750	......	......	......	2,380	1,200	1,150	2,660	980	3,130
2	7,260	2,560	2,940	......	......	......	2,380	1,200	980	2,380	980	2,750
3	5,830	2,840	2,940	......	......	......	2,750	1,150	1,090	1,450	1,090	2,380
4	4,960	3,130	3,940	......	......	......	2,380	1,150	1,090	1,320	1,090	2,200
5	4,370	3,130	3,730	......	......	......	2,030	1,150	1,720	1,200	1,320	2,030
6	4,150	2,380	3,530	......	......	......	1,870	1,090	2,940	1,720	1,450	1,950
7	3,730	2,120	3,330	......	......	......	1,870	1,090	1,580	1,580	1,320	1,870
8	3,330	2,380	2,940	......	......	......	1,720	980	1,200	1,580	1,260	1,800
9	3,330	2,380	2,940	......	......	......	1,720	1,150	1,090	1,520	1,090	1,800
10	3,130	2,940	2,840	......	......	......	1,650	1,090	1,980	1,450	1,040	2,030
11	3,130	2,940	3,940	......	......	......	1,720	1,150	1,200	1,380	980	8,520
12	3,130	2,840	2,940	......	......	......	1,720	2,750	1,720	1,320	980	7,560
13	3,130	3,530	4,600	......	......	......	1,650	1,150	2,940	1,450	1,200	6,380
14	4,040	3,130	6,100	......	......	......	1,580	1,260	2,380	1,320	1,200	5,320
15	4,600	3,730	6,960	......	......	......	1,450	1,200	1,870	1,200	1,200	4,600
16	5,320	3,940	6,380	......	......	......	1,450	1,090	1,580	1,200	1,200	4,260
17	5,320	3,940	5,570	......	......	......	1,320	1,260	1,320	1,200	1,200	4,370
18	5,570	3,730	4,600	......	......	......	1,580	1,090	1,090	1,200	1,200	4,150
19	5,570	3,530	4,370	......	......	......	1,580	1,090	980	1,090	1,140	3,840
20	8,520	3,330	5,200	......	......	......	1,580	1,090	1,200	1,090	1,140	3,530
21	11,400	3,330	4,370	......	......	......	1,580	1,200	1,200	1,090	1,200	3,130
22	7,260	3,130	4,370	......	......	......	2,380	1,320	1,450	1,040	1,320	2,940
23	5,700	2,840	4,150	......	......	......	1,580	1,320	1,450	1,090	1,580	2,940
24	4,840	2,560	3,730	......	......	......	1,520	1,260	5,320	1,040	2,380	13,800
25	4,370	2,560	3,330	......	......	......	1,450	1,520	17,800	980	5,830	17,800

Daily discharge, in second-feet, of Shenandoah River at Millville, W. Va., for 1906–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	3,940	2,560	3,130	......	......	......	1,390	2,380	6,670	980	8,860	12,200
27	3,730	2,560	2,940	......	......	......	1,320	1,650	4,150	980	6,380	8,200
28	3,330	2,750	2,840	......	......	......	1,320	1,450	3,330	980	4,840	5,570
29	3,130	......	2,750	......	......	......	1,320	1,320	2,940	980	4,150	4,840
30	3,130	......	2,380	......	......	......	1,320	1,200	2,750	980	3,530	4,370
31	2,940	......	2,380	......	......	......	1,260	1,200	......	980	......	4,040
1908												
1	3,840	3,530	4,840	2,940	1,520	4,840	1,580	1,720	3,330	1,720	3,940	1,140
2	3,730	3,130	5,320	3,130	1,520	3,940	1,580	1,450	2,030	1,450	3,130	1,140
3	3,530	2,750	6,960	3,230	1,520	3,330	2,380	1,200	1,800	1,200	2,560	1,200
4	3,230	2,560	7,880	3,230	1,580	2,940	1,720	1,090	1,580	1,140	2,200	1,090
5	3,040	2,470	7,260	3,130	1,720	5,080	1,720	1,140	1,450	1,040	1,870	1,040
6	2,940	2,380	6,670	3,040	2,030	5,320	1,720	1,090	1,520	980	1,720	1,090
7	2,840	2,560	8,520	2,940	3,840	5,080	1,580	1,090	1,580	980	1,650	1,090
8	2,840	3,130	8,200	2,94	9,900	4,150	1,580	1,090	1,520	980	1,580	1,040
9	2,940	3,130	7,560	2,84	7,560	3,530	1,650	1,450	1,450	980	1,450	1,140
10	2,840	2,750	6,960	2,66	6,960	3,530	1,450	1,200	1,450	880	1,320	1,090
11	2,750	2,560	6,100	2,38	5,320	3,430	1,450	1,090	1,380	980	1,380	980
12	4,840	2,750	5,570	2,38	4,150	3,330	1,320	1,200	1,260	1,200	1,200	1,140
13	53,500	3,330	5,080	2,29	3,730	3,040	1,320	1,200	1,140	1,090	1,140	1,090
14	35,300	4,260	4,840	2,20	3,130	2,750	1,260	1,200	1,090	1,140	1,090	1,090
15	16,900	16,500	4,370	2,12	2,940	2,560	1,200	1,090	1,040	980	1,200	1,090
16	11,800	37,500	4,040	2,120	2,660	3,130	1,090	980	980	930	1,260	1,090
17	8,860	22,900	3,840	2,030	2,380	6,960	980	1,090	980	880	1,200	1,090
18	6,960	13,000	3,730	2,030	2,380	3,940	980	1,720	930	830	1,200	1,040
19	6,380	8,520	3,730	1,950	4,840	3,130	980	1,320	880	780	1,200	980
20	5,570	6,960	3,940	2,030	5,080	2,750	980	1,200	980	880	1,140	980
21	5,320	6,100	3,840	1,950	8,200	2,380	980	1,090	930	830	1,320	980
22	5,200	5,320	3,730	1,800	33,200	2,560	980	980	880	830	1,450	980
23	5,080	4,840	3,730	1,720	27,000	2,200	980	980	830	780	1,580	1,040
24	4,840	4,370	3,530	1,720	20,800	2,200	1,090	930	830	830	1,320	980
25	4,600	4,150	3,330	1,720	13,000	2,030	1,320	980	830	1,200	1,320	980
26	4,370	4,370	3,130	1,650	9,200	2,030	4,150	2,940	880	5,830	1,260	980
27	4,260	6,100	3,040	1,650	9,720	1,950	3,530	8,200	880	3,330	1,260	1,090
28	4,260	5,570	3,130	1,580	6,670	1,870	3,130	7,560	880	2,750	1,200	1,200
29	4,150	5,080	2,940	1,580	5,320	1,720	3,730	6,960	2,380	2,750	1,200	1,200
30	3,730	......	2,840	1,580	5,830	1,580	3,130	5,570	2,200	2,120	1,200	1,200
31	3,630	......	2,940	......	5,320	......	2,380	4,840	......	5,080	......	1,320

Day	Jan.	Feb.	Mar.	Day	Jan.	Feb.	Mar.
1909				1909			
1	1,580	2,750	4,370	16	2,380	3,530	2,750
2	3,040	2,560	3,940	17	2,750	3,530	2,560
3	2,940	2,380	3,940	18	2,940	3,330	2,380
4	2,380	2,380	4,370	19	3,330	3,330	2,290
5	2,380	2,200	4,600	20	3,130	3,330	2,200
6	2,380	2,030	4,150	21	2,940	4,150	2,030
7	4,370	2,030	4,040	22	2,750	4,260	2,030
8	4,150	2,030	3,940	23	3,330	4,150	1,950
9	3,330	2,030	3,840	24	9,200	5,570	1,950
10	2,940	2,380	3,530	25	10,600	5,830	1,870
11	2,380	5,570	3,630	26	8,520	6,380	1,870
12	2,380	8,520	3,430	27	4,840	5,700	2,030
13	2,290	6,100	3,330	28	4,370	5,080	2,380
14	2,030	4,840	3,130	29	3,940	......	2,750
15	2,030	4,150	2,940	30	3,530	......	2,560
				31	3,330	......	2,380

NOTE.—Discharge determined from a rating curve well defined between 480 and 11,000 second-feet. Discharge above 11,000 second-feet computed from a rating curve which is the product of a well-defined area curve and a fairly accurate extension of the velocity curve.

Monthly discharge of Shenandoah River at Millville, W. Va., for 1895–1909.

[Drainage area 3,000 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1895						
April 15-30	4,600	1,870	2,904	0.970	0.576	
May	20,780	2,560	5,570	1.86	2.14	
June	3,130	980	1,613	.539	.601	
July	7,260	980	1,880	.628	.724	
August	1,580	540	806	.269	.310	
September	1,320	610	722	.241	.269	
October	610	480	537	.179	.206	
November	690	540	621	.207	.231	
December	1,450	610	754	.252	.290	
1896						
January	11,400	880	2,434	.813	.937	
February	12,580	1,450	3,709	1.24	1.34	
March	12,180	1,450	3,842	1.28	1.48	
April	8,860	1,450	2,807	.937	1.05	
May	4,370	1,090	2,127	.710	.819	
June	3,940	780	2,056	.686	.765	
July	9,030	1,320	2,858	.954	1.10	
August	1,870	780	1,150	.384	.443	
September	13,190	540	1,042	.348	.388	
October	139,700	880	7,768	2.59	2.99	
November	4,840	880	1,835	.613	.684	
December	6,380	1,450	2,296	.767	.884	
The year	139,700	540	2,827	.944	12.88	
1897						
January	1,720	980	1,220	.407	.469	
February (25 days)	37,870	1,090	11,680	3.90	3.63	
March	6,760	2,590	4,946	1.65	1.90	
April	3,350	1,620	2,671	.892	.995	
May	30,620	1,760	6,243	2.08	2.40	
June	2,410	1,010	1,632	.545	.608	
July	3,770	910	1,426	.476	.549	
August	1,760	730	987	.330	.380	
September	1,350	580	664	.222	.248	
October	1,010	550	692	.231	.266	
November	1,620	650	859	.287	.320	
December	3,990	820	1,619	.541	.624	
1898						
January	6,180	1,010	2,435	.813	.937	
February	2,770	1,010	1,612	.538	.560	
March	5,650	1,010	2,227	.744	.858	
April	13,120	2,070	4,353	1.45	1.62	
May	29,150	2,070	5,711	1.91	2.20	
June	2,410	1,120	1,647	.550	.614	
July	3,770	820	1,249	.417	.481	
August	50,900	1,350	8,164	2.73	3.15	
September	1,835	1,120	1,360	.454	.506	
October	30,500	1,010	5,684	1.90	2.19	
November	4,210	2,070	2,827	.944	1.05	
December	14,780	2,410	4,498	1.50	1.73	
The year	50,900	820	3,481	1.16	15.90	

Monthly discharge of Shenandoah River at Millville, W. Va., for 1895–1909—Contd.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1899						
January	17,840	2,770	5,116	1.71	1.97	
February 1-21	7,380	2,070	3,675	1.23	.960	
March 10-31	12,720	4,440	7,065	2.36	1.93	
April	4,910	2,070	3,289	1.10	1.23	
May	4,910	1,480	2,533	.846	.975	
June	4,670	1,010	1,607	.537	.599	
July	1,760	730	877	.293	.338	
August	1,910	650	992	.331	.382	
September	1,760	730	989	.330	.368	
October	910	650	785	.262	.302	
November	5,150	910	1,403	.468	.522	
December	4,440	820	1,398	.467	.538	
1900						
January	14,780	1,230	2,970	.992	1.14	
February	14,360	1,350	3,833	1.28	1.33	
March	16,960	2,590	5,866	1.96	2.26	
April	4,670	1,835	2,803	.936	1.04	
May	2,410	1,230	1,689	.564	.650	
June	9,020	1,010	2,249	.751	.838	
July	4,210	775	1,374	.459	.529	
August	1,290	690	829	.277	.319	
September	1,230	580	696	.232	.259	
October	2,770	650	947	.316	.364	
November	9,020	730	1,453	.485	.541	
December	10,060	1,010	2,232	.745	.859	
The year	16,960	580	2,245	.750	10.13	
1901						
January	5,[illegible]10	820	1,812	.605	.698	
February	[illegible]	730	1,315	.439	.457	
March	10,[illegible]	820	3,376	1.13	1.30	
April	50,000	2,500	12,840	4.29	4.79	
May	45,[illegible]	2,590	8,704	2.91	3.36	
June	18,240	3,770	8,225	2.75	3.07	
July	13,940	1,2[illegible]	4,437	1.48	1.71	
August	11,180	1,620	3,528	1.18	1.36	
September	11,[illegible]	1,230	2,496	.833	.929	
October	6,460	1,120	1,769	.591	.681	
November	3,990	910	1,341	.448	.500	
December	50,000	1,350	8,124	2.71	3.12	
The year	50,000	730	4,831	1.61	21.98	
1902						
January	21,100	2,240	5,176	1.73	1.99	
February	50,000	1,120	8,611	2.88	3.00	
March	77,900	4,100	13,880	4.63	5.34	
April	20,140	2,960	6,785	2.27	2.53	
May	7,380	1,760	2,606	.870	1.00	
June	1,910	1,120	1,402	.468	.522	
July	1,620	865	1,097	.366	.422	
August	2,410	775	1,062	.355	.409	
September	1,120	650	724	.242	.270	
October	2,155	775	1,069	.357	.412	
November	3,560	730	1,157	.386	.431	
December	9,020	2,240	4,728	1.58	1.82	
The year	77,900	650	4,025	1.34	18.15	

Monthly discharge of Shenandoah River at Millville, W. Va., for 1895–1909—Contd.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	27,900	2,070	6,802	2.27	2.62	
February	9,360	2,770	5,448	1.82	1.90	
March	22,060	3,560	7,907	2.64	3.04	
April	23,060	3,665	7,880	2.63	2.93	
May	3,560	1,760	2,321	.775	.894	
June	31,200	2,240	7,448	2.49	2.78	
July	9,530	1,415	3,453	1.15	1.33	
August	2,590	1,065	1,590	.531	.612	
September	9,360	1,230	2,249	.751	.838	
October	2,770	1,065	1,454	.485	.559	
November	1,120	730	961	.321	.358	
December	1,620	650	927	.310	.357	
The year	31,200	650	4,037	1.35	18.22	
1904						
January 1-24	3,770	910	1,428	.477	.426	
February	....	....	....	....	....	
March 8-31	9,900	1,515	2,546	.850	.759	
April	7,880	1,090	2,191	.732	.817	
May	5,570	1,650	2,779	.928	1.07	
June	6,960	1,090	2,430	.811	.905	
July	12,580	1,090	1,930	.644	.742	
August	2,030	575	1,096	.366	.422	
September	880	510	620	.207	.231	
October	610	480	521	.174	.201	
November	610	480	528	.176	.196	
December	2,845	510	780	.260	.300	
1905						
January	4,150	830	2,065	.689	.794	
February	4,370	1,200	1,684	.562	.585	
March	9,370	2,560	4,387	1.46	1.68	
April	3,230	1,200	1,945	.649	.724	
May	2,940	880	1,382	.461	.531	
June	13,820	690	2,552	.852	.950	
July	11,400	1,450	2,994	1.00	1.15	
August	4,840	930	1,557	.520	.600	
September	1,145	575	810	.270	.301	
October	880	540	640	.214	.247	
November	690	575	624	.208	.232	
December	11,400	610	2,336	.780	.899	
The year	13,820	540	1,915	.639	8.69	
1906						
January	11,400	2,030	3,720	1.24	1.43	
February	2,940	1,090	1,640	.548	.57	
March	9,900	1,090	3,890	1.30	1.50	
April	9,370	2,380	4,460	1.49	1.66	
May	2,940	1,090	1,800	.601	.69	
June	9,540	1,200	2,900	.965	1.08	
July	2,660	1,200	1,580	.527	.61	
August	11,800	1,320	5,220	1.74	2.01	
September	6,380	1,090	1,980	.660	.74	
October	60,800	1,450	8,250	2.75	3.17	
November	7,880	1,720	3,020	1.01	1.13	
December	8,520	1,450	3,050	1.02	1.18	
The year	60,800	1,090	3,460	1.15	15.77	

Monthly discharge of Shenandoah River at Millville, W. Va., for 1895–1909—Contd.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
January	11,400	2,940	4,710	1.57	1.81	A.
February	3,940	2,120	2,990	.997	1.04	A.
March	6,960	2,380	3,840	1.28	1.46	A.
April	....	....	4,600	1.53	1.71	D.
May	....	....	3,400	1.13	1.30	D.
June	....	....	7,200	2.40	2.68	D.
July	2,750	1,260	1,700	.567	.65	A.
August	2,750	980	1,300	.433	.50	A.
September	17,800	980	2,570	.857	.96	A.
October	2,660	980	1,300	.433	.50	A.
November	8,860	980	2,100	.700	.78	A.
December	17,800	1,800	4,880	1.63	1.88	A.
The year	....	980	3,380	1.13	15.27	
1908						
January	53,500	2,750	7,550	2.52	2.90	A.
February	37,500	2,380	6,640	2.21	2.38	A.
March	8,520	2,840	4,890	1.63	1.88	A.
April	3,270	1,580	2,290	.763	.85	A.
May	22,200	1,570	7,070	2.36	2.72	A.
June	6,960	1,580	3,240	1.08	1.20	A.
July	4,150	980	1,740	.580	.67	A.
August	8,200	930	2,120	.707	.82	A.
September	5,330	830	1,330	.443	.49	A.
October	5,830	780	1,530	.510	.59	A.
November	3,940	1,090	1,550	.517	.58	A.
December	1,320	980	1,080	.360	.42	A.
The year	53,500	780	3,420	1.14	15.50	
1909						
January	10,600	1,580	3,630	1.21	1.40	B.
February	8,520	2,030	3,930	1.31	1.36	B.
March	4,600	1,870	3,010	1.00	1.15	B.

NOTE. Drainage area of 2,995 square miles used previous to 1906. Ice present during January and Dec. 24-31, 1897; February, 1898, and January and February, 1899; estimates not corrected. Backwater from ice Feb. 5-6, 1900; discharge estimates corrected. Slight backwater from ice during part of January and February, 1901; no correction made in discharge estimates. Apr. 22 and Dec. 31, 1901, river out of banks; discharge estimated 50,000 second-feet. Ice present during part of February, 1902; no correction made in discharge estimates. Feb. 26-27, 1902, river out of banks; discharge estimated 50,000 second-feet. Backwater Dec. 16, 1903, during part of December, 1904; Mar. 6, 1905; and Feb. 4, 1906; discharge estimates corrected. Mean monthly discharge for April, May, and June, 1907, computed from discharge at Point of Rocks, using same rate of discharge per square mile.

LEWIS CREEK NEAR STAUNTON, VA.

Location.—At a private bridge on property of William Glenn, about a mile below a railroad bridge, and about 2 miles northeast of Staunton.

Drainage area.—20 square miles.

Records available.—July 1, 1905, to July 15, 1906.

Gage.—Vertical staff fastened to a tree on left bank just below bridge; read once daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Both banks are about 5 feet high; neither overflows except during very high water. Bed of stream is soft mud which shifts. Current sluggish.

Extremes of discharge.—Maximum stage recorded: 1.94 feet, June 25, 1906; discharge, 92 second-feet. Minimum stage recorded: 0.33 foot, May 17, 1906; discharge, 1.2 second-feet.

Winter flow.—Discharge relation probably not affected by ice during winter of 1905-6.

Accuracy.—Results fair previous to the high water of May, 1906; approximate for high-water periods and after the flood in May, 1906.

Discharge measurements of Lewis Creek near Staunton, Va., in 1906.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
April 10	Robert Follansbee	0.83	12.5
June 14	Follansbee and Padgett	.55	6.6

Daily gage height, in feet, of Lewis Creek near Staunton, Va., for 1906.

[Ashby Glenn, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	0.54	0.49	0.74	0.74	0.48	0.54	0.64
2	.43	.53	.70	.70	.53	.53	.53
3	.54	.60	.71	.64	.60	.54	.54
4	1.43	.53	.53	.49	.49	.58	.53
5	.94	.54	.64	.54	.53	.59	.49
6	.83	.53	.59	.48	.54	.48	.53
7	.64	.49	.54	.44	.53	.54	.64
8	.53	.53	.53	.57	.54	.53	.53
9	.49	.44	.71	.44	.43	.49	.54
10	.43	.48	.53	.83	.49	.53	.48
11	.39	.44	.54	.84	.48	.44	.44
12	.48	.53	.59	.73	.49	.53	.48
13	.69	.49	.74	.79	.43	.54	.53
14	.53	.59	.63	.63	.44	.53	.64
15	[illegible]	.54	1.04	.74	.48	.49	.43
16	.53	.48	.83	.63	.49	.63	....
17	.44	.54	.84	.74	.33	.49	....
18	.48	.53	.83	.53	.34	.43	....
19	.59	.49	.84	.49	.48	.49	....
20	.53	.43	.78	.53	.44	.53	....
21	.74	.49	.74	.49	.43	.49	....
22	[illegible]	.53	.70	.53	.49	.43	....
23	.54	.54	.64	.64	.38	.44	....
24	.63	.43	.63	.63	.34	.93	....
25	.54	.54	.64	.54	.33	1.94	....
26	.48	.53	.59	.54	.94	1.83	....
27	.54	.49	.54	.59	1.18	.94	....
28	.63	.43	1.13	.49	1.64	.73	....
29	.54	....	.84	.63	1.13	.54	....
30	.48	....	.93	.64	.64	.53	....
31	.44	....	1.24	....	.58	....	....

NOTE.—Discharge relation probably unaffected by ice.

Daily discharge, in second-feet, of Lewis Creek near Staunton, Va., for 1905–6.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							1905						
1	6.8	2.6	3.4	1.9	1.9	3.4	16	4.4	3.4	3.4	1.9	3.4	6.8
2	14.1	4.4	1.9	1.9	3.4	3.4	17	3.4	2.6	3.4	3.4	2.6	3.4
3	8.2	2.6	2.6	6.8	3.4	5.5	18	3.4	5.5	2.6	2.6	9.7	3.4
4	6.8	2.6	1.9	1.9	3.4	1.9	19	4.4	3.4	2.6	2.6	2.6	3.4
5	3.4	5.5	2.6	1.9	3.4	3.4	20	1.9	2.6	2.6	5.5	1.9	2.6
6	3.4	3.4	2.6	1.4	5.5	3.4	21	3.4	2.6	2.6	5.5	2.6	1.9
7	8.2	3.4	2.6	1.9	6.8	2.6	22	21.0	2.6	3.4	3.4	4.4	2.6
8	5.5	2.6	2.6	1.9	3.4	3.4	23	5.5	4.4	2.6	5.5	1.4	2.6
9	4.4	3.4	2.6	5.5	1.9	3.4	24	5.5	2.6	2.6	8.2	1.4	3.4
10	3.4	2.6	2.6	3.4	1.9	1.9	25	4.4	3.4	2.6	6.8	3.4	3.4
11	3.4	1.4	2.6	18.9	4.4	1.9	26	3.4	3.4	1.9	5.5	3.4	3.4
12	23.5	2.6	2.6	11.3	3.4	1.9	27	5.5	3.4	1.9	5.5	3.4	2.6
13	8.2	2.6	3.4	8.2	5.5	2.6	28	2.6	3.4	1.9	5.5	2.6	6.8
14	3.4	2.6	5.5	3.4	5.5	3.4	29	3.4	3.4	1.9	1.9	1.9	4.4
15	4.4	3.4	5.5	1.9	3.4	5.5	30	2.6	1.9	1.9	2.6	1.9	3.4
							31	3.4	3.4	......	3.4	......	1.9

Daily discharge, in second-feet, of Lewis Creek near Staunton, Va., for 1905–6—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	4.2	3.2	9.4	9.4	3.1	6.3	9.1
2	2.3	4.0	8.2	8.2	4.0	6.0	6.0
3	4.2	5.5	8.5	6.5	5.5	6.3	6.3
4	44.9	4.0	4.0	3.2	3.2	7.3	6.0
5	16.4	4.2	6.5	4.2	4.0	7.6	5.1
6	12.4	4.0	5.3	3.1	4.2	4.9	6.0
7	6.5	3.2	4.2	2.5	4.0	6.3	9.1
8	4.0	4.0	4.0	4.8	4.2	6.0	6.0
9	3.2	2.5	8.5	2.5	2.3	5.1	6.3
10	2.3	3.1	4.0	12.3	3.2	6.0	4.9
11	5.3	2.5	4.2	12.7	3.1	4.0	4.0
12	3.1	4.0	5.3	9.1	3.2	6.0	4.9
13	7.9	3.2	9.4	11.0	2.3	6.3	6.0
14	4.0	5.3	6.3	6.3	2.5	6.0	9.1
15	5.3	4.2	20.6	9.4	3.1	5.1	3.8
16	4.0	3.1	12.3	6.3	3.2	8.8	....
17	2.5	4.2	12.7	9.4	1.2	5.1	....
18	3.1	4.0	12.3	4.0	1.3	3.8	....
19	5.3	3.2	12.7	3.2	3.1	5.1	....
20	4.0	2.3	10.7	4.0	2.5	6.0	....
21	9.4	3.2	9.4	3.2	2.3	5.1	....
22	6.3	4.0	8.2	4.0	3.2	3.8	....
23	9.4	4.2	6.5	6.5	1.7	4.0	....
24	6.3	2.3	6.3	6.3	1.3	19.6	....
25	4.2	4.2	6.5	4.2	1.2	92	....
26	3.1	4.0	5.3	4.2	16.4	82	....
27	4.2	3.2	4.2	5.3	27.8	20.1	....
28	6.3	2.3	25.0	3.2	66	12.0	....
29	4.2	....	12.7	6.3	30.3	6.3	....
30	3.1	....	16.0	6.5	9.1	6.0	....
31	2.5	....	31.4	....	7.3	....	....

NOTE.—Discharge July 1, 1905, to May 27, 1906, computed from a rating curve fairly well defined between 3.5 and 12 second-feet. Discharge May 28 to July 15, 1906, computed from a rating curve based on one measurement and the form of the preceding curve.

Monthly discharge of Lewis Creek near Staunton, Va., for 1905–6.

[Drainage area, 20 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
July	24.	1.9	6.0	0.299	0.34
August	5.5	1.4	3.2	.158	.18
September	5.5	1.9	2.8	.138	.15
October	19.	1.4	4.6	.229	.26
November	9.7	1.4	3.5	.173	.19
December	6.8	1.9	3.3	.167	.19
1906					
January	45.	2.3	6.6	.329	.38
February	5.5	2.3	3.6	.180	.19
March	31.	4.0	9.7	.485	.56
April	13.	2.3	6.1	.303	.34
May	66.	1.2	7.4	.370	.43
June	92.	3.8	12.3	.615	.69
July 1–15	9.1	3.8	6.2	.308	.17

NOTE.—Results rated as follows: July and October, 1905, and January, March, April, and May, 1906, good; remainder of the period, fair, except June, which is approximate; discharge below 2 second-feet and above 30 second-feet, approximate.

COOKS CREEK AT MOUNT CRAWFORD, VA.

Location.—At the upper highway bridge, three-fourths mile east of Mount Crawford.

Drainage area.—41 square miles.

Records available.—July 1, 1905, to July 15, 1906.

Gage.—Chain on downstream side of bridge; read once daily.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Both banks overflow during high water, but all the water passes beneath the bridge. Bed composed of mud and gravel. Current very sluggish at low stages.

Extremes of discharge.—Maximum stage recorded: 5.5 feet, July 5, 1905; discharge, 346 second-feet. Minimum stage recorded, 1.70 feet, September to December, 1905; discharge, 10 second-feet. These maxima and minima are approximate.

Winter flow.—Discharge relation probably unaffected by ice during winter of 1905-6.

Accuracy.—Results, except at stages covered by measurements, are approximate.

The following discharge measurement was made by Robert Follansbee:

April 10, 1906: Gage height, 2.32 feet; discharge, 32.4 second-feet.

Daily gage height, in feet, of Cooks Creek at Mount Crawford, Va., for 1906.

[S. H. Craun, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	2.05	2.0	2.0	2.5	2.1	2.0	2.1
2	2.05	2.0	2.0	2.4	2.1	2.0	2.1
3	2.05	1.8	2.0	2.3	2.1	2.0	2.1
4	3.0	2.0	2.4	2.3	2.1	2.0	2.1
5	2.5	2.0	2.2	2.2	2.1	2.0	2.0
6	2.3	2.1	2.1	2.3	2.1	1.9	2.0
7	2.3	2.0	2.1	2.2	2.2	1.9	2.0
8	2.2	2.0	2.1	2.2	2.2	1.9	2.0
9	2.2	2.0	2.1	2.3	2.1	1.9	2.0
10	2.1	2.0	2.1	2.3	2.1	1.9	2.0
11	2.1	2.1	2.1	2.2	2.1	1.9	3.0
12	2.1	2.0	2.1	2.2	2.0	1.9	2.1
13	2.1	2.0	2.05	2.2	2.1	1.8	2.0
14	2.3	2.0	2.4	2.2	2.1	1.8	2.0
15	2.3	2.0	2.6	2.5	2.0	1.8	2.0
16	2.2	1.9	2.5	2.4	2.0	1.8	....
17	2.2	2.0	2.4	2.3	2.0	2.0	....
18	2.2	2.0	2.3	2.2	2.0	2.0	....
19	2.1	1.9	2.4	2.2	2.0	2.0	....
20	2.1	1.9	2.3	2.2	2.0	2.5	....
21	2.1	2.0	2.3	2.2	1.9	2.1	....
22	2.1	2.0	2.3	2.2	1.9	2.2	....
23	2.3	2.0	2.3	2.2	1.9	2.1	....
24	2.3	1.8	2.3	2.1	2.0	2.0	....
25	2.2	2.0	2.3	2.1	2.0	2.0	....
26	2.1	2.0	2.3	2.2	2.0	2.1	....
27	2.1	2.0	2.6	2.2	2.0	3.0	....
28	2.2	2.0	2.5	2.1	2.0	2.0	....
29	2.2	....	2.5	2.1	2.0	2.2	....
30	2.1	....	2.4	2.1	2.0	2.1	....
31	2.1	....	2.5	....	2.0	....	....

Daily discharge, in second-feet, of Cooks Creek at Mount Crawford, Va., for 1905–6.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905						
1	23	27	13	13	10	13
2	23	27	16	13	10	13
3	19	23	16	13	10	19
4	19	23	13	13	10	13
5	346	23	13	13	10	13
6	92	23	13	13	10	13
7	64	19	10	10	10	13
8	36	19	13	10	10	13
9	27	19	13	10	10	13
10	23	19	13	10	10	13
11	41	19	13	10	10	13
12	23	23	13	10	13	13
13	31	23	13	10	13	10
14	27	23	13	10	10	10
15	58	19	13	10	10	10
1905						
16	36	19	13	10	10	10
17	31	16	13	10	10	10
18	27	19	13	10	10	10
19	27	16	13	13	13	10
20	36	19	13	10	13	10
21	23	19	13	10	13	64
22	27	16	13	10	13	46
23	36	16	13	10	13	36
24	31	13	13	10	13	31
25	27	16	10	13	13	23
26	27	23	10	19	13	19
27	27	19	13	13	13	19
28	19	19	10	13	13	19
29	19	19	10	13	13	31
30	78	16	13	10	13	23
31	36	16	......	10	......	27

Daily discharge, in second-feet, of Cooks Creek at Mount Crawford, Va., for 1905–6—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	21	19	19	41	23	19	23
2	21	19	19	36	23	19	23
3	21	13	19	31	23	19	23
4	71	19	36	31	23	19	23
5	41	19	27	27	23	19	19
6	31	23	23	31	23	16	19
7	31	19	23	27	27	16	19
8	27	19	23	27	27	16	19
9	27	19	23	31	23	16	19
10	23	19	23	31	23	16	19
11	23	23	23	27	23	16	71
12	23	19	23	27	19	16	23
13	23	19	21	27	23	13	19
14	31	19	36	27	23	13	19
15	31	19	46	41	19	13	19
16	27	16	41	36	19	13	....
17	27	19	36	31	19	19	....
18	27	19	31	27	19	19	....
19	23	16	36	27	19	19	....
20	23	16	31	27	19	41	....
21	23	19	31	27	16	23	....
22	23	19	31	27	16	27	....
23	31	19	31	27	16	23	....
24	31	13	31	23	19	19	....
25	27	19	31	23	19	19	....
26	23	19	31	27	19	23	....
27	23	19	46	27	19	71	....
28	27	19	41	23	19	19	....
29	27	....	41	23	19	27	....
30	23	....	36	23	19	23	....
31	23	....	41	....	19	....	....

NOTE.—Discharge determined from a rating curve fairly well defined between 20 and 40 second-feet and approximate beyond these limits.

Monthly discharge of Cooks Creek at Mount Crawford, Va., for 1905–6.

[Drainage area, 41 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
July	346	19	43.8	1.07	1.23
August	27	13	19.7	.480	.55
September	16	10	12.7	.310	.35
October	19	10	11.4	.278	.32
November	13	10	11.4	.278	.31
December	64	10	18.7	.456	.53

Monthly discharge of Cooks Creek at Mount Crawford, Va., for 1905–6—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1906					
January	71	21	27.5	.671	.77
February	23	13	18.5	.451	.47
March	46	19	30.6	.746	.86
April	41	23	28.7	.700	.78
May	27	16	20.6	.502	.58
June	71	13	21.0	.512	.57
July 1–15	71	19	23.8	.580	.32

NOTE.—Results rated as follows: July, 1905, fair; August and December, 1905, good; September to November, 1905, approximate; 1906, good. Discharge determinations below 15 second-feet and above 60 second-feet, approximate. The rating curve used in the above determinations is virtually based on two measurements and hence is very uncertain.

ELK RUN AT ELKTON, VA.

Location.—At highway bridge 100 feet below railroad bridge, 500 feet south of the railroad station at Elkton, and about half a mile above the mouth.

Drainage area.—15.8 square miles.

Records available.—June 28, 1905, to July 15, 1906.

Gage.—Chain on downstream side of bridge; read once daily.

Discharge measurements.—Made from the highway bridge or from a footbridge about 1,000 feet downstream.

Channel and control.—Both banks overflow during high water. Current sluggish. Bed composed of gravel; practically permanent. Control section below gage shifts.

Extremes of discharge.—Maximum stage recorded: 4.5 feet, April 15, 1906; discharge, 132 second-feet. Minimum stage recorded: 2.4 feet in September, 1905; discharge, 5.5 second-feet.

Winter flow.—Discharge relation slightly affected by ice.

Accuracy.—Results only fair as a good rating curve could not be developed, because of changing conditions at the control section.

Discharge measurements of Elk Run at Elkton, Va., in 1906.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
April 11	Robert Follansbee	2.78	15.7
June 14	Follansbee and Padgett	2.57	6.5

Daily gage height, in feet, of Elk Run at Elkton, Va., for 1906.

[C. L. Gooden, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	2.85	2.9	2.7	3.1	2.9	2.67	2.5
2	2.8	2.95	2.7	3.8	2.88	2.5	2.5
3	2.75	2.9	3.35	3.0	2.75	2.6	2.5
4	3.25	2.9	3.3	2.95	2.8	2.65	2.6
5	3.1	2.9	2.9	2.85	2.8	2.51	2.5
6	3.0	2.85	2.85	2.9	2.9	2.6	3.5
7	2.91	2.85	2.8	2.85	2.95	2.59	2.8
8	2.8	2.8	2.8	2.8	2.9	2.5	2.78
9	2.96	2.8	2.81	2.95	2.8	2.6	2.7
10	2.91	2.8	2.7	2.8	2.87	2.58	2.72
11	2.9	2.8	2.8	2.85	2.85	2.53	2.7
12	2.8	2.78	2.75	2.8	2.7	2.6	2.72
13	2.8	2.77	2.85	2.8	2.75	2.58	2.7
14	2.8	2.75	2.95	2.85	2.7	2.47	2.7
15	3.0	2.7	3.0	4.5	2.55	2.58	2.75
16	2.9	2.77	3.1	3.5	2.64	2.6	....
17	2.85	2.7	3.0	3.2	2.6	2.6	....
18	2.8	2.7	2.95	3.0	2.6	2.65	....
19	2.8	2.8	2.9	2.95	2.6	2.7	....
20	2.75	2.72	2.85	2.85	2.6	3.65	....
21	2.75	2.7	2.9	2.9	2.55	2.9	....
22	2.8	2.78	2.9	2.9	2.62	3.2	....
23	3.0	2.77	2.85	2.85	2.6	2.9	....
24	3.1	2.8	2.8	2.8	2.5	2.87	....
25	3.0	2.75	2.7	2.8	2.6	2.82	....
26	2.95	2.78	2.9	2.95	2.62	2.72	....
27	3.0	2.75	2.85	3.0	2.5	2.63	....
28	3.15	2.75	2.9	2.95	2.72	2.6	....
29	2.95	....	3.0	2.95	2.7	2.6	....
30	3.0	....	2.9	2.85	2.65	2.55	....
31	2.9	....	3.1	....	2.7	....	....

Daily discharge, in second-feet, of Elk Run at Elkton, Va., for 1905–6.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							1905						
1	14	8.5	8.5	6.5	9.5	9.5	16	9.5	13	5.5	8	9.5	7.5
2	14	8	7	6.5	9.5	9.5	17	9.5	10.5	5.5	10	9.5	7.5
3	11	8	7	6.5	9.5	9.5	18	9.5	8.5	5.5	9	9.5	7.5
4	11	7	7	6	9.5	9.5	19	8.5	9.5	5.5	9	9.5	9.5
5	11	7	8.5	6	9.5	9.5	20	8	8.5	15	9	10.5	32
6	11	7	7	6.5	9.5	9.5	21	8	8.5	8.5	10	9.5	46
7	11	7	5.5	6.5	9.5	9.5	22	10.5	9.5	7	10	8.5	11.5
8	11	9.5	5.5	6.5	12	8.5	23	7	8.5	7	10	8.5	9.5
9	9	8.5	5.5	8	9.5	8.5	24	7	23	7	10	8.5	9.5
10	9	7	5.5	8	9.5	9.5	25	7	28	6.5	12	8.5	11.5
11	9	10.5	6	27	9.5	9.5	26	7	19	6.5	12	8.5	9.5
12	57	10.5	5.5	14.5	9.5	8.5	27	7	19	6.5	9.5	8.5	11.5
13	28	29	6	10	9.5	8.5	28	8.5	12.5	6.5	9.5	8.5	11.5
14	19	85	6	8	12	8.5	29	8.5	10	6.5	9.5	8.5	17
15	12.5	19.5	6	8	9.5	7.5	30	8.5	10	6.5	9.5	8.5	15.5
							31	8.5	8.5	......	9.5	......	14

Daily discharge, in second-feet, of Elk Run at Elkton, Va., for 1905–6—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	13	15.5	11.5	29	17.5	9	6
2	11.5	18	11.5	89	17	6.5	6
3	10.5	16.5	42.5	24	13	8	6
4	29	16.5	38.5	21.5	14.5	8	7
5	21.5	16.5	17.5	17.5	14.5	6	6
6	17.5	15	15.5	19.5	17.5	7	44
7	14.5	15	14	17.5	19.5	7	11
8	11.5	13.5	15	16	16.5	6	11
9	16	13.5	15	21.5	13.5	7	9
10	14.5	13.5	12	16	15.5	7	9
11	14	13.5	15	17.5	15	6	9
12	11.5	13	13.5	16	13	7	9
13	11.5	12.5	16.5	16	12	7	9
14	11.5	12	20.5	17.5	13	5.5	9
15	17.5	11	22.5	132	8	6.5	10
16	15.5	12.5	27.5	58.5	9.5	7	....
17	14	11	22.5	35.5	8.5	7	....
18	12.5	11	20.5	24	8.5	7.5	....
19	12.5	14	18.5	21.5	8.5	8.5	....
20	11	12	16.5	16.5	8.5	54	....
21	11	11.5	18.5	18.5	7.5	13	....
22	12.5	13.5	18.5	18.5	9	24	....
23	19	13	16.5	16.5	8.5	13	....
24	23	14	15	15	7	12	....
25	19	12.5	13	15	8.5	11	....
26	17	13.5	19.5	20.5	8	9	....
27	19	12.5	17.5	23	6.5	7.5	....
28	25.5	12.5	19.5	20.5	10	7	....
29	17	....	24	19.5	9.5	7	....
30	19	....	19.5	16	8	6.5	....
31	15.5	....	29	....	9.5	....	....

NOTE.—Discharge obtained by indirect method for shifting channel.

Monthly discharge of Elk Run at Elkton, Va., for 1905–6.

[Drainage area, 15.8 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
July	57	7.0	11.9	0.753	0.87
August	85	7.0	14.1	.892	1.03
September	15	5.5	6.7	.426	.48
October	27	6.0	9.4	.594	.68
November	12	8.5	9.4	.595	.66
December	46	7.5	11.8	.747	.86
1906					
January	29	10	15.8	1.00	1.15
February	18	11	13.5	.854	.89
March	42	11	19.3	1.22	1.41
April	132	15	27.0	1.71	1.91
May	20	6.5	11.5	.728	.84
June	54	5.5	9.9	.627	.70
July 1–15	44	6.0	10.7	.677	.38

NOTE.—Results for 1905 and 1906 are approximate, owing to shifting channel and insufficient discharge measurements.

HAWKSBILL CREEK NEAR LURAY, VA.

Location.—100 feet above a footbridge, 400 feet above mouth of Dry Run, and 1½ miles north of Luray.

Drainage area.—52 square miles.

Records available.—June 27, 1905, to July 15, 1906.

Gage.—Staff in two sections—lower inclined, upper vertical—attached to a tree on left bank; read once daily.

Discharge measurements.—Made from the footbridge or by wading.

Channel and control.—Left bank overflows at high water; right does not overflow. Bed composed of gravel; free from vegetation, and practically permanent. Rapids below the gage prevent backwater from Dry Run except during extreme floods.

Extremes of discharge.—Maximum stage: 3.35 feet, estimated, April 15, 1906; discharge, 430 second-feet. Minimum stage recorded: 1.3 feet in September, 1905; discharge, 24 second-feet. The highest known stage occurred October 13, 1893, and was determined from well-defined marks to have been 19.55 feet above the zero of the gage.

Winter flow.—Discharge relation probably unaffected by ice during the period of record.

Accuracy.—Results considered reliable except for extreme high and low stages.

Discharge measurements of Hawksbill Creek near Luray, Va., in 1906.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
April 12	Robert Follansbee	1.86	75
June 15 [a]	Follansbee and Padgett	1.50	36

[a] Wading below footbridge.

Daily gage height, in feet, of Hawksbill Creek near Luray, Va., for 1906.

[J. S. Miller, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	2.0	1.9	1.55	2.3	1.9	1.6	1.6
2	1.9	1.9	1.55	2.2	1.85	1.6	1.55
3	3.3	1.9	1.8	2.1	1.85	1.55	1.55
4	2.7	1.85	2.0	2.05	1.85	1.55	1.55
5	2.45	1.85	1.95	2.0	1.8	1.5	1.55
6	2.25	1.75	1.85	1.95	1.75	1.5	1.5
7	2.2	1.7	1.85	1.95	1.75	1.5	1.5
8	2.1	1.7	1.85	1.9	1.75	1.5	1.5
9	2.0	1.7	1.8	1.9	1.75	1.5	1.5
10	2.05	1.65	1.8	1.95	1.75	2.0	1.5
11	2.0	1.65	1.75	1.9	1.75	1.8	1.8
12	1.9	1.65	1.7	1.9	1.7	1.6	1.6
13	1.8	1.65	1.7	1.8	1.7	1.55	1.55
14	1.8	1.7	1.7	1.8	1.65	1.55	1.55
15	1.8	1.65	1.75	3.35	1.65	2.65	1.55
16	1.8	1.6	1.8	3.05	1.65	1.95	....
17	1.75	1.6	1.75	2.55	1.65	2.5	....
18	1.75	1.6	1.75	2.35	1.6	1.8	....
19	1.75	1.55	1.85	2.25	1.6	1.6	....
20	1.75	1.55	1.9	2.2	1.6	1.6	....
21	1.7	1.6	1.9	2.1	1.6	2.45	....
22	1.65	1.55	1.9	2.0	1.55	1.75	....
23	1.75	1.55	1.9	1.85	1.5	1.7	....
24	1.75	1.5	1.9	1.85	1.5	1.7	....
25	1.8	1.55	1.9	1.85	1.5	1.7	....
26	1.8	1.55	1.9	2.1	1.5	1.8	....
27	1.9	1.55	2.15	2.05	1.5	1.8	....
28	1.9	1.55	2.4	2.0	1.6	1.75	....
29	1.9	....	2.35	1.9	1.6	1.7	....
30	1.9	....	2.3	1.9	1.55	1.65	....
31	1.9	....	2.4	....	1.5	....	....

Daily discharge, in second-feet, of Hawksbill Creek near Luray, Va., for 1905–6.

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							
1	....	46	34	30	27	30	30
2	....	46	30	30	27	30	30
3	....	46	30	30	30	30	52
4	....	42	30	27	27	30	46
5	....	42	30	24	27	30	37
6	....	42	30	24	27	34	34
7	....	42	30	24	27	34	34
8	....	42	30	24	27	30	34
9	....	37	30	24	27	30	34
10	....	37	30	30	27	30	34
11	....	37	30	30	34	30	34
12	....	37	30	30	34	30	34
13	....	37	30	27	30	30	34
14	....	37	30	24	30	30	34
15	....	34	27	24	30	30	34

Daily discharge, in second-feet, of Hawksbill Creek near Luray, Va., for 1905–6—Continued.

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905							
16	....	30	27	24	27	30	34
17	....	30	27	27	27	30	30
18	....	30	34	37	27	30	30
19	....	30	34	27	27	30	37
20	....	30	34	27	27	30	37
21	....	30	34	27	27	30	298
22	....	30	34	27	27	30	258
23	....	34	34	27	27	30	232
24	....	34	63	30	30	27	196
25	....	34	37	30	37	27	162
26	....	30	52	30	46	27	133
27	63	30	30	30	37	27	98
28	57	30	30	27	34	30	76
29	52	30	30	27	34	34	63
30	46	46	30	27	34	30	173
31	....	37	30	....	30	....	142

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	98	83	42	152	83	46	46
2	83	83	42	133	76	46	42
3	414	83	69	115	76	42	42
4	245	76	98	106	76	42	42
5	184	76	90	98	69	37	42
6	142	63	76	90	63	37	37
7	133	57	76	90	63	37	37
8	115	57	76	83	63	37	37
9	98	57	69	83	63	37	37
10	106	52	69	90	63	98	37
11	98	52	63	83	63	69	69
12	83	52	57	83	57	46	46
13	69	52	57	69	57	42	42
14	69	57	57	69	52	42	42
15	69	52	63	430	52	232	42
16	69	46	69	340	52	90	....
17	63	46	63	208	52	196	....
18	63	46	63	162	46	69	....
19	63	42	76	142	46	46	....
20	63	42	83	133	46	46	....
21	57	46	83	115	46	184	....
22	52	42	83	98	42	63	....
23	63	42	83	76	37	57	....
24	63	37	83	76	37	57	....
25	69	42	83	76	37	57	....
26	69	42	83	115	37	69	....
27	83	42	124	106	37	69	....
28	83	42	173	98	46	63	....
29	83	....	162	83	46	57	....
30	83	....	152	83	42	51	....
31	83	....	173	....	37	....	....

NOTE.—Discharge computed from a rating curve fairly well defined between 30 and 100 second-feet. Above and below these limits the probable error is about 10 per cent.

Monthly discharge of Hawksbill Creek near Luray, Va., for 1905–6.

[Drainage area, 52 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
June 27-31	63	46	54.5	1.05	0.16
July	46	30	36.1	.694	.80
August	63	27	32.6	.627	.72
September	37	24	27.5	.529	.59
October	46	27	30.0	.577	.66
November	34	27	30.0	.577	.64
December	298	30	81.7	1.57	1.81
1906					
January	414	52	100	1.92	2.21
February	83	37	53.9	1.04	1.08
March	173	42	85.2	1.64	1.89
April	430	69	123	2.37	2.64
May	83	37	53.6	1.03	1.19
June	232	37	68.8	1.32	1.47
July 1 15	69	37	42.7	.821	.458

NOTE.—Results rated as follows: June to August, 1905, February, March, May to July, 1906, excellent; remainder of 1905 and 1906, good.

NORTH FORK OF SHENANDOAH RIVER NEAR RIVERTON, VA.

Location.—On the farm owned by L. W. Burke, about 2 miles above Riverton.

Drainage area.—1,040 square miles.

Records available.—June 26, 1899, to February 25, 1902; August 16, 1902, to July 14, 1906.

Gage.—Vertical staff, originally on right bank, removed to left bank and datum lowered 1 foot on September 10, 1900; read twice daily.

Discharge measurements.—Made from a cable about 100 feet below the gage.

Channel and control.—Both banks are low, fringed with trees, and liable to overflow. Bed of stream composed of rocks and mud; shifts somewhat. Discharge relation controlled by the dam at Riverton; height of this dam was increased from 8 feet to 10 feet in August, 1904.

Extremes of discharge.—Maximum stage observed: 17.5 feet at 6 P. M., April 21, 1901; discharge not computed. Minimum stage recorded: 3.5 feet during August, 1900; discharge, 90 second-feet.

Winter flow.—Discharge relation affected by ice to some extent.

Accuracy.—Estimates of discharge for low and medium stages probably reliable, but for higher stages not covered by measurements may be considerably in error. Measurement made in January, 1908, indicates that the rating curves used gave results too small at high stages, or that the control section has changed.

Discharge measurements of North Fork of Shenandoah River near Riverton, Va., in 1906 and 1908.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
April 13	Robert Follansbee	5.60	969
1908			
January 15[a]	LaRue and Follansbee	7.9	3,960

[a] Made at bridge below dam.

Daily gage height, in feet, of North Fork of Shenandoah River near Riverton, Va., for 1906.

[L. W. Burke, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	5.7	5.3	4.55	7.9	5.65	4.62	5.05
2	5.45	5.2	4.5	7.1	5.5	4.7	4.88
3	5.4	5.1	4.75	6.7	5.4	4.58	4.85
4	8.6	5.5	6.45	6.32	5.35	4.52	6.12
5	7.75	5.0	6.55	6.1	5.25	4.65	5.52
6	6.83	4.98	5.9	5.92	5.32	4.62	5.2
7	6.2	5.15	5.55	5.75	5.32	4.55	4.95
8	5.85	5.6	5.45	5.6	5.48	4.75	4.82
9	5.58	5.5	5.35	5.52	5.45	4.62	4.7
10	5.35	5.25	5.25	6.1	5.3	4.6	4.6
11	5.37	5.45	5.15	5.95	5.22	4.85	4.6
12	5.27	4.9	5.0	5.75	5.2	4.78	4.6
13	5.25	4.68	5.0	5.62	5.05	4.65	4.65
14	5.3	4.6	5.0	5.28	5.0	4.58	4.62
15	5.4	4.68	5.05	6.4	4.9	5.05	....
16	5.48	4.65	5.2	6.98	4.88	5.25	....
17	5.4	4.8	5.45	6.4	4.82	5.5	....
18	5.38	4.55	5.58	6.05	4.8	5.85	....
19	5.33	4.52	5.8	5.88	4.8	5.9	....
20	5.27	4.6	5.9	5.7	4.72	5.65	....
21	5.2	4.6	5.95	5.58	4.62	6.85	....
22	5.1	4.6	6.2	5.48	4.6	7.25	....
23	5.05	4.6	6.55	5.4	4.6	6.6	....
24	5.7	4.6	6.45	5.28	4.55	5.8	....
25	5.9	4.53	6.2	5.2	4.55	5.55	....
26	5.55	4.55	6.1	5.2	4.52	5.3	....
27	5.33	4.52	7.5	7.48	4.52	6.1	....
28	5.3	4.58	9.4	6.7	5.08	6.2	....
29	5.37	....	8.45	6.15	4.9	5.7	....
30	5.43	....	8.35	5.85	4.75	5.35	....
31	5.35	....	8.1	....	4.65	....	....

NOTE.—Backwater due to ice Feb. 4, 7-11, 17.

Daily discharge, in second-feet, of North Fork of Shenandoah River near Riverton, Va., for 1906.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	1,000	720	300	3,210	962	335	565
2	820	655	275	2,270	855	375	469
3	785	595	400	1,870	785	315	452
4	4,160	565	1,632	1,513	752	285	1,337
5	3,020	535	1,728	1,320	688	350	869
6	2,000	524	1,155	1,171	733	335	655
7	1,405	502	890	1,038	733	300	508
8	1,115	502	820	925	841	400	436
9	911	502	752	869	820	335	375
10	752	502	688	1,320	720	325	325
11	766	502	625	1,195	668	452	325
12	700	480	535	1,038	655	415	325
13	688	365	535	940	565	350	350
14	720	325	535	707	535	315	335
15	785	365	565	1,585	480	565	....

Daily discharge, in second-feet, of North Fork of Shenandoah River near Riverton, Va., for 1906—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
16	841	350	655	2,150	469	687	....
17	785	325	820	1,585	436	855	....
18	772	300	911	1,278	425	1,115	....
19	740	285	1,075	1,139	425	1,155	....
20	700	325	1,155	1,000	385	962	....
21	655	325	1,195	911	335	2,020	....
22	595	325	1,405	841	325	2,435	....
23	565	325	1,728	785	325	1,775	....
24	1,000	325	1,632	707	300	1,075	....
25	1,155	290	1,405	655	300	890	....
26	890	300	1,320	655	285	720	....
27	740	285	2,720	2,696	285	1,320	....
28	720	315	5,350	1,870	583	1,405	....
29	766	....	3,950	1,362	480	1,000	....
30	806	....	3,810	1,115	400	752	....
31	752	....	3,470	....	350	....	....

NOTE.—Backwater, discharge estimated, Feb. 4, 7-11, and 17. Discharge computed from a rating curve well defined between 100 and 855 second-feet.

Monthly discharge of North Fork of Shenandoah River near Riverton Va., for 1899–1906.

[Drainage area, 1,040 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1899					
June 26-30	307	255	293	0.282	0.052
July	481	130	228	.220	.254
August	390	151	220	.212	.244
September	355	140	227	.219	.244
October	225	140	185	.178	.205
November	545	168	238	.230	.257
December	390	140	255	.246	.284
1900					
January	4,330	255	702	.677	.780
February	3,862	355	1,128	1.09	1.14
March	5,700	585	1,620	1.56	1.80
April	1,760	465	765	.738	.823
May	585	225	324	.312	.360
June	2,195	195	504	.486	.542
July	1,616	140	294	.284	.327
August	207	90	128	.123	.142
September	355	130	155	.149	.166
October	320	168	219	.211	.243
November	3,890	140	441	.425	.474
December	2,650	140	548	.528	.609
The year	5,700	90	569	.549	7.41

Monthly discharge of North Fork of Shenandoah River near Riverton Va., for 1899–1906—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1901					
January	2,195	195	627	.605	.698
February	390	207	299	.288	.300
March	10,960	195	1,391	1.34	1.54
April	21,630	693	4,034	3.89	4.34
May	17,850	728	2,653	2.56	2.95
June	12,680	990	2,842	2.74	3.06
July	4,030	505	1,499	1.44	1.66
August	2,260	428	862	.831	.958
September	2,390	168	684	.660	.736
October	1,322	195	396	.382	.440
November	1,580	140	363	.350	.390
December	14,580	268	3,091	2.98	3.44
The year	21,630	140	1,562	1.50	20.51
1902					
January	3,960	545	1,304	1.26	1.45
February 1-25	6,660	1,090	1,969	1.90	1.77
March					
April					
May					
June					
July					
August 16-31	275	220	243	.234	.139
September	318	165	211	.204	.228
October	440	220	259	.250	.288
November	800	190	317	.306	.341
December	3,890	495	1,228	1.18	1.36
1903					
January 1-28	8,390	495	2,225	2.15	2.24
February 9-28	3,205	735	1,127	1.09	.811
March	6,860	670	1,750	1.69	1.95
April	6,605	735	1,848	1.78	1.99
May	1,340	390	549	.529	.610
June	10,360	580	2,208	2.13	2.38
July	1,840	340	736	.710	.819
August	800	255	371	.358	.413
September	1,655	295	464	.447	.499
October	640	275	373	.360	.415
November	295	255	265	.256	.286
December	522	255	284	.274	.316
1904					
January 1-23	255	255	255	.246	.210
February					
March 5-31	1,610	400	620	.598	.600
April	2,465	318	661	.637	.711
May	1,840	440	718	.692	.798
June	2,090	318	606	.584	.652
July	2,212	295	554	.534	.616
August	550	125	255	.246	.284
September	172	96	124	.120	.134
October	125	90	110	.106	.122
November	125	100	112	.108	.120
December	350	105	225	.217	.250

Monthly discharge of North Fork of Shenandoah River near Riverton Va., for 1899–1906—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)
	Maximum	Minimum	Mean	Per square mile	
1905					
January 1-7, 23–31	1,155	155	759	.732	.436
February	855	855	855	.824	.858
March	2,900	785	1,335	1.29	1.49
April	1,075	375	596	.575	.642
May	1,362	230	406	.392	.452
June	7,450	155	1,042	1.00	1.12
July	2,270	400	908	.876	1.01
August	1,320	198	417	.402	.464
September	252	140	192	.185	.206
October	275	112	170	.164	.189
November	230	125	172	.166	.185
December	5,575	140	889	.857	.988
1906					
January	4,160	565	1,036	.996	1.15
February	720	285	418	.402	.419
March	5,350	275	1,421	1.37	1.58
April	3,210	655	1,324	1.27	1.42
May	962	285	545	.524	.604
June	2,435	285	787	.757	.845
July 1–14	1,337	325	523	.503	.262

NOTE.—Drainage area of 1,037 square miles used previous to 1906. River frozen and no correction made in discharge estimates for following periods: Dec. 26-31, 1899; Jan. 1-14, Jan. 30 to Feb. 6, 1900; part of January and February, 1901; Dec. 21-28, 1901; Feb. 4-24, 1902; Jan. 12-28, Dec. 16-23, 26-31, 1903; Jan. 1-23, Dec. 12-26, 1904; Jan. 5 to Mar. 4, 1905. Backwater caused by ice Feb. 4, 7-11, and 17, 1905, and discharge estimates corrected.

PASSAGE CREEK AT BUCKTON, VA.

Location.—At the trestle of the Southern Railway at Buckton, a siding about a mile east of Waterlick, and about 700 feet above the mouth.

Drainage area.—Not measured.

Records available.—October 26, 1905, to July 15, 1906.

Gage.—Vertical staff fastened to third trestle bent from left abutment.

Discharge measurements.—Made from the railway trestle.

Channel and control.—Banks below the bridge are low and likely to overflow. The fall to the mouth of the creek is 6 or 8 feet.

Extremes of stage.—Maximum stage recorded: 4.4 feet, morning of June 18, 1906. Minimum stage recorded: 0.75 foot, May 26, 1906.

Winter flow.—Ice forms in the stream and probably affects discharge relation.

Measurements insufficient for computations of discharge.

Discharge measurements of Passage Creek at Buckton, Va., in 1905–6.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1905				1906			
Oct. 26	Robert Follansbee	1.23	40.5	Apr. 13	Robert Follansbee	1.40	91
Dec. 27	do	1.25	50.0	June 16	do	1.72	1.32

Daily gage height, in feet, of Passage Creek at Buckton, Va., for 1905–6.

[Nehemiah Messick, observer.]

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1905				1905				1905			
1	......	0.95	0.9	11	......	.95	.95	21	......	.9	3.15
2	......	.9	.9	12	......	.85	.9	22	......	.9	3.1
3	......	.95	.95	13	......	.9	.95	23	......	.9	2.35
4	......	.9	1.4	14	......	.85	.9	24	......	.85	2.0
5	......	.95	1.2	15	......	.9	.95	25	......	.9	1.95
6	......	.95	1.2	16	......	.95	1.15	26	1.2	.9	1.45
7	......	.9	1.1	17	......	.85	1.1	27	1.15	.85	1.4
8	......	.95	1.15	18	......	.9	1.15	28	1.15	.9	1.25
9	......	.9	.95	19	......	.85	1.1	29	.9	.85	2.2
10	......	.95	.95	20	......	.95	1.15	30	.95	.95	1.8
								31	.95	......	1.4

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	1.4	1.2	1.1	2.6	1.3	0.85	1.3
2	1.35	1.25	1.0	2.2	1.3	.95	1.2
3	1.3	1.3	1.1	1.9	1.3	.9	1.2
4	3.4	1.3	3.1	1.8	1.25	.85	1.2
5	2.0	1.3	2.2	1.7	1.25	.9	1.1
6	1.8	1.4	1.6	1.6	1.25	1.1	1.0
7	1.5	1.4	1.5	1.6	1.25	1.0	.9
8	1.5	1.6	1.5	1.5	1.3	.9	.9
9	1.5	1.7	1.5	1.3	1.25	.85	.85
10	1.55	1.6	1.4	1.9	1.2	.85	.85
11	1.55	1.5	1.3	1.6	1.2	.85	.85
12	1.5	1.5	1.3	1.5	1.2	1.1	.8
13	1.4	1.2	1.3	1.4	1.2	1.0	1.0
14	1.4	1.1	1.3	1.4	1.2	.9	.85
15	1.5	1.1	1.4	2.5	1.1	.9	.85
16	1.45	1.2	1.4	2.4	1.1	1.6	....
17	1.4	1.15	1.35	2.0	1.0	2.55	....
18	1.3	1.15	1.4	1.85	1.0	3.2	....
19	1.3	1.1	1.6	1.7	1.0	2.2	....
20	1.3	1.1	1.5	1.6	1.0	2.1	....
21	1.2	1.0	1.6	1.55	1.0	2.4	....
22	1.2	1.0	1.8	1.5	.95	2.52	....
23	1.2	1.0	2.2	1.4	.9	2.1	....
24	1.25	1.0	2.1	1.4	.9	1.95	....
25	1.2	1.0	2.1	1.4	.8	1.9	....
26	1.2	1.0	2.1	1.4	.75	1.7	....
27	1.2	1.0	2.6	1.65	.8	2.6	....
28	1.25	1.1	3.4	1.5	.95	1.7	....
29	1.2	....	3.4	1.4	1.0	1.6	....
30	1.2	....	3.3	1.35	.9	1.4	....
31	1.2	....	2.6	....	.85	....	....

NOTE.—Stream frozen Dec. 17-19, 1905, and Feb. 4 to 13, 1906.

GOOSE CREEK NEAR LEESBURG, VA.

Location.—At Evergreen Mills about 7 miles directly south of Leesburg, about 1 mile below the mouth of Little River, and 10 miles above the mouth of Goose Creek.

Drainage area.—338 square miles.

Records available.—July 12, 1909, to December 31, 1912.

Gage.—Vertical staff, read once daily, spiked to a tree on the left bank immediately below the tailrace of the mill.

Discharge measurements.—Made between the mill and the dam, either by wading or from the highway bridge. The discharge of the mill race is also measured and added to the discharge between the mill and the dam.

Channel and control.—Left bank overflows at stage of about 10 feet. Stream is wider below than at gage and slope is flat. Control section not examined, but the plotting of the discharge measurements indicates that it is not permanent.

Extremes of discharge.—On September 24 and 25, 1912, water was above the gage, which reads to 16.0 feet. The discharge for 16 feet has been estimated at 7,000 second-feet. Minimum recorded stage was 0.06 foot, October 5, 1910; corresponding discharge, 1.6 second-feet. The extremes of discharge may be subject to large errors because of lack of discharge measurements at those stages.

Winter flow.—Ice forms at the gage but seldom entirely across the stream. The effect on the discharge relation is not accurately known as the station was not inspected during any periods when ice was present.

Regulation.—The dam at this point is of timber and rock, and at low stages most of the water passes through it. The mill race carries water at all times, three or four times more when the mill is running than when it is idle. This variation in flow causes variation in the gage heights ranging from a few hundredths to about 0.15 foot; but as the mill is run only four or five hours a day the fluctuation has a relatively small effect on the accuracy of estimates.

Accuracy.—Because of the few discharge measurements only fairly well-defined rating curves have been developed. The gage-height record has not been entirely satisfactory at times. The results can be considered only fair for ordinary stages, and poor at extreme high and low stages.

Discharge measurements of Goose Creek near Leesburg, Va., in 1909–1915.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1909				1911			
July 19....	G. C. Stevens.......	0.83	[a] 53.2	Oct. 6....	J. G. Mathers.......	.94	[e] 68
Aug. 19...	.....do................	.97	[b] 81.7				
				1913			
1910				July 16...	Batchelder and Walters	.68	[f] 40.5
Jan. 22 ...	G. C. Stevens......	4.42	[c] 1,330				
Jan. 25 ...	.....do	2.23	[d] 451	1915			
Jan. 25 ...	.....do	2.16	[d] 447	June 18 ..	G. C. Stevens......	2.34	[g] 363

[a] Left channel, 5.8 second-feet; right channel, 39.3 second-feet; mill race, mill not running, 8.1 second-feet.

[b] Left channel, 6.1 second feet; right channel, 44.4 second-feet; mill race, mill running, 31.2 second-feet.

[c] Includes 40 second-feet; estimated quantity flowing in mill race.

[d] Includes 28.0 second-feet flowing in mill race.

[e] Includes 11.2 second-feet flowing in mill race.

[f] Includes 5.4 second-feet, leakage into tailrace; mill not running.

[g] Includes 12.2 second-feet, leakage into tailrace; mill not running.

Daily gage height, in feet, of Goose Creek near Leesburg, Va., for 1909–1912.

[J. O. Daniel, observer.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909							1909						
1	......	0.75	0.64	0.80	1.25	1.20	16	1.05	.92	.92	1.08	1.50	1.60
2	......	.78	.62	.78	1.26	1.10	17	1.05	3.00	.98	1.04	1.40	1.34
3	......	.80	.64	.78	1.28	1.08	18	1.02	1.10	1.05	1.00	1.35	1.32
4	......	.83	.70	.76	1.36	1.10	19	1.00	1.00	.95	1.00	1.40	1.10
5	......	.76	.75	.85	1.40	1.06	20	.95	.90	.90	1.00	1.40	1.10
6	......	.75	.74	.75	1.35	1.08	21	.85	.86	.85	.98	1.35	1.08
7	......	.80	.75	.66	1.30	1.10	22	.84	.84	.80	1.20	1.40	1.06
8	......	.80	.72	.65	1.45	1.12	23	.80	.82	.82	1.00	1.50	1.08
9	......	.82	.74	.64	1.35	1.08	24	.80	.76	1.10	1.20	1.20	1.10
10	......	.85	1.00	.64	1.45	1.12	25	.82	.74	1.00	1.40	1.10	1.10
11	......	.78	1.20	.62	1.50	1.10	26	.80	.70	.96	1.30	1.15	1.06
12	1.03	.79	1.10	.80	1.40	1.20	27	.80	.66	.92	1.38	1.10	1.08
13	1.05	.76	1.00	1.40	1.35	2.00	28	.80	.66	.88	1.30	1.08	1.08
14	1.02	.75	.90	1.25	1.40	4.00	29	.80	.62	.85	1.35	1.10	1.10
15	1.02	.85	.88	1.15	1.45	3.00	30	.79	.60	.82	1.38	1.15	1.10
							31	.81	.60	......	1.30	......	1.08

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
1	1.08	1.60	4.60	1.10	1.54	1.06	1.28	0.70	0.42	0.10	0.70	0.95
2	1.10	1.58	3.10	1.00	1.40	1.04	1.30	.65	.48	.12	.65	.95
3	1.10	1.50	2.85	1.05	1.38	1.10	1.24	.60	.50	.10	.70	.94
4	1.08	1.95	2.36	1.10	1.55	1.20	1.48	.65	.60	.08	.68	.95
5	1.10	1.85	2.25	1.30	1.35	1.30	1.50	.62	.70	.06	.70	1.00
6	1.10	1.90	2.20	1.30	1.30	1.40	1.28	.64	.66	.10	.65	1.10
7	3.30	1.98	2.05	1.20	1.28	1.38	1.15	.66	.65	.12	.70	1.10
8	2.00	1.52	2.02	1.20	1.10	1.36	1.22	.68	.62	.14	.68	1.05
9	1.80	1.50	1.95	1.20	1.02	1.30	1.35	.55	.60	.20	.70	1.05
10	1.30	1.50	1.90	1.15	.95	2.00	1.34	.60	.61	.40	.75	1.05
11	1.25	1.45	1.85	1.15	.94	2.40	1.30	.65	.62	.50	.77	1.05
12	1.10	1.50	1.88	1.10	1.30	3.00	1.88	.68	.65	.45	.75	1.05
13	1.10	1.30	1.82	1.08	1.32	2.65	2.06	.70	.66	.40	.72	1.05
14	1.08	1.32	1.73	1.05	1.28	2.10	1.38	.65	.60	.45	.75	1.05
15	1.10	3.30	1.64	1.05	1.15	1.80	1.12	.64	.50	.40	.70	1.10
16	1.15	4.50	1.55	1.08	1.12	6.00	1.10	.80	.40	.40	.75	1.10
17	1.20	4.51	1.50	2.00	1.10	3.08	1.05	.92	.30	.45	.85	1.10
18	1.25	6.51	1.40	2.70	1.08	3.02	1.04	.95	.25	.40	.86	1.10
19	7.00	3.40	1.38	2.50	1.04	3.00	1.06	.96	.20	.38	.90	1.10
20	3.00	3.35	1.39	2.00	1.02	2.30	1.10	.94	.20	.40	.88	1.10
21	6.00	3.25	1.38	1.90	1.04	2.10	1.05	.82	.22	.50	.85	1.10
22	4.70	3.87	1.38	1.80	1.06	2.04	.98	.75	.20	.70	.90	1.00
23	3.75	3.52	1.37	1.54	1.20	1.85	1.00	.70	.18	1.00	.92	1.05
24	3.05	2.90	1.32	2.36	1.12	1.74	.98	.65	.15	1.50	.95	1.05
25	2.20	2.71	1.32	3.00	1.44	1.50	.94	.62	.14	1.10	1.10	1.10
26	1.80	2.67	1.33	2.50	1.30	1.45	.90	.64	.12	.95	.98	1.10
27	1.70	3.70	1.33	2.20	1.22	1.38	.92	.55	.13	.75	1.00	1.15
28	1.70	4.10	1.32	1.90	1.10	2.15	.90	.50	.15	.70	1.05	1.25
29	1.68	....	1.30	1.60	1.12	1.85	.88	.48	.10	.65	1.08	1.25
30	1.75	....	1.24	1.55	1.10	1.48	.80	.40	.12	.70	1.00	1.90
31	1.70	....	1.20	....	1.08	....	.75	.38	....	.60	....	1.90

Daily gage height, in feet, of Goose Creek near Leesburg, Va., for 1909–1912—Contd.

Day	Jan.	Feb.	Mar.	Apr.	Sept.	Oct.	Nov.	Dec.
1911								
1	1.55	2.6	1.6	1.6	2.1	1.0	1.2	2.05
2	1.8	2.35	1.6	1.45	2.1	1.05	1.24	2.08
3	2.6	2.2	1.6	1.45	2.2	1.1	1.28	1.96
4	2.8	2.5	1.6	1.7	3.0	1.08	1.32	1.9
5	2.0	2.0	1.4	3.45	3.5	1.05	1.3	1.85
6	2.0	1.9	1.35	2.7	4.0	1.02	1.3	1.84
7	2.0	1.8	1.35	2.4	3.0	1.03	1.4	1.5
8	1.85	1.8	1.35	2.4	2.0	1.03	1.5	1.46
9	1.8	1.75	1.4	2.3	.6	1.06	2.0	1.45
10	1.7	1.75	1.7	2.0	1.5	1.08	1.8	1.4
11	1.6	1.7	2.0	2.0	1.5	1.1	1.6	1.38
12	1.05	1.75	2.6	1.9	2.0	1.08	1.5	1.4
13	1.35	1.7	2.75	1.85	2.6	1.08	3.0	1.36
14	1.9	1.7	2.5	1.85	2.6	1.06	2.8	1.3
15	1.2	1.75	2.4	1.85	2.6	1.08	2.75	1.28
16	1.3	1.7	2.2	1.7	2.5	1.1	2.9	1.35
17	1.4	1.7	2.5	1.7	2.5	1.04	2.88	1.5
18	1.35	1.65	2.5	1.65	2.25	4.0	3.0	1.6
19	1.35	1.7	2.0	1.65	2.0	3.0	3.0	1.8
20	1.2	1.7	2.0	1.65	2.0	2.0	2.8	2.0
21	1.15	1.7	2.0	1.65	1.7	1.8	2.75	2.05
22	1.15	1.7	1.9	1.65	1.0	1.65	2.5	2.3
23	1.2	1.65	1.85	1.6	1.8	1.8	2.45	3.0
24	1.5	1.65	1.7	1.6	1.1	1.85	2.4	3.2
25	1.55	1.65	1.65	1.55	1.05	1.82	2.55	3.4
26	1.55	1.65	1.65	1.4	1.05	1.78	2.2	3.5
27	1.6	1.65	1.65	1.4	1.0	1.76	2.18	4.0
28	1.6	1.65	1.8	1.4	1.0	1.74	2.0	3.8
29	2.3	....	2.0	1.4	1.05	1.4	1.98	3.4
30	3.5	....	2.5	1.35	1.0	1.38	2.1	3.0
31	2.9	....	1.6	....	....	1.3	....	2.8

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	3.5	1.6	3.6	3.8	2.4	2.6	2.2	2.7	1.0	2.9	1.3	1.2
2	3.4	1.6	3.5	3.4	2.4	2.8	2.15	2.7	.75	2.8	1.3	1.22
3	3.4	1.55	3.0	3.6	2.4	2.8	2.1	2.9	.6	2.8	1.3	1.22
4	3.4	1.55	2.8	3.2	2.5	2.7	2.05	2.8	.6	2.8	1.3	1.2
5	3.2	1.5	2.6	3.1	2.5	2.5	2.15	2.8	.6	2.5	1.28	1.3
6	3.2	1.5	2.5	2.8	2.5	3.3	2.1	3.0	.75	2.2	1.28	1.3
7	3.0	1.5	2.8	3.2	2.6	2.7	2.0	2.9	1.2	2.0	1.27	1.3
8	2.8	1.48	2.8	2.8	2.8	2.6	1.8	2.8	1.6	1.75	1.25	1.28
9	2.6	1.48	2.6	2.3	2.7	2.6	1.4	2.8	1.5	1.3	1.25	1.28
10	2.4	1.46	2.6	2.4	2.7	2.6	1.2	2.4	1.0	1.3	1.26	1.26
11	2.15	1.5	2.6	2.35	4.0	2.5	1.0	2.2	.8	1.3	1.26	1.2
12	2.1	1.5	3.0	2.45	4.5	2.4	1.1	2.0	.6	1.3	1.26	1.2
13	2.05	1.48	4.5	2.3	5.0	2.4	1.2	1.9	.4	1.3	1.26	1.2
14	2.05	1.46	4.0	2.2	5.5	2.4	1.4	1.8	.3	1.3	1.26	1.2
15	2.0	1.46	5.5	2.1	4.0	2.5	1.4	2.0	.3	1.3	1.26	1.2
16	2.0	1.48	4.6	2.1	3.8	3.0	1.5	1.8	.3	1.3	1.26	1.4
17	1.85	1.5	4.0	2.2	4.0	3.5	1.6	1.4	.3	1.3	1.26	1.4
18	1.8	1.6	3.5	2.4	3.3	2.9	1.65	1.3	.5	1.3	1.26	1.38
19	1.8	1.6	2.8	2.5	5.0	3.1	1.65	1.2	2.1	1.3	1.26	1.36
20	1.85	2.5	2.6	2.6	4.8	3.2	1.65	1.0	2.1	1.3	1.26	1.35

Daily gage height, in feet, of Goose Creek near Leesburg, Va., for 1909–1912—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
21	1.8	2.7	2.3	2.5	4.2	3.1	1.65	.95	2.2	1.3	1.26	1.35
22	1.8	3.0	2.6	2.5	3.4	3.0	1.7	.95	2.2	1.3	1.26	1.35
23	1.8	4.5	2.8	2.5	3.2	3.0	1.7	1.0	3.0	1.25	1.26	1.35
24	1.7	4.0	2.9	2.45	2.7	2.8	2.1	.85	....	1.25	1.24	1.38
25	1.7	3.5	2.7	2.4	2.5	2.8	2.0	.85	....	1.25	1.24	1.4
26	1.7	3.6	2.7	2.5	2.4	2.7	1.8	.85	5.0	1.25	1.23	1.45
27	1.65	5.0	2.5	2.4	2.4	2.6	1.7	1.0	4.0	1.3	1.22	1.5
28	1.65	4.0	2.45	2.6	2.6	2.5	1.7	1.2	3.0	1.3	1.2	1.5
29	1.65	3.8	6.0	2.5	2.8	2.2	1.7	1.2	3.0	1.3	1.2	1.5
30	1.65	....	4.5	2.5	2.7	2.25	1.9	1.2	3.0	1.3	1.2	8.5
31	1.65	....	3.0	....	2.7	....	2.8	1.2	....	1.3	....	5.0

NOTE.—1909: Creek frozen Dec. 20-31; maximum thickness of ice, Dec. 25-31, 4 inches.

1910: Discharge relation probably affected by ice from about Jan. 1-6 and 12-18, for short periods during first half of February, and from about Dec. 5-24.

1911: Discharge relation probably affected by ice for a considerable part of January and February. It is not known whether gage heights were read to water surface or to top of ice. The lower part of the gage became covered with silt during 1911, and for that reason the gage heights reported for May to August were considered too unreliable to publish. Silt was cleared away Oct. 6.

1912: Discharge relation affected by ice during parts of January and February. On Sept. 24 and 25 water was above the gage, which reads to 16.0 feet.

Daily discharge, in second-feet, of Goose Creek near Leesburg, Va., for 1909–1912.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909							1909						
1	......	42	29	49	142	130	16	95	69	69	102	210	240
2	......	46	27	46	145	106	17	95	743	80	93	182	166
3	......	49	29	46	150	102	18	88	106	95	84	168	160
4	......	54	36	44	171	106	19	84	84	74	84	182	106
5	......	44	42	57	182	97	20	74	65	65	84	182	90
6	......	42	41	42	168	102	21	57	59	57	80	168	80
7	......	49	42	32	155	106	22	55	55	49	130	182	80
8	......	49	39	30	196	111	23	49	52	52	84	210	70
9	......	52	41	29	168	102	24	49	44	106	130	130	60
10	......	57	84	29	196	111	25	52	41	84	182	106	60
11	......	46	130	27	210	106	26	49	36	76	155	118	50
12	91	48	106	49	182	130	27	49	32	69	177	106	50
13	95	44	84	182	168	370	28	49	32	62	155	102	50
14	88	42	65	142	182	1,150	29	49	27	57	168	106	40
15	88	57	62	118	196	743	30	48	25	52	177	118	40
							31	51	25	......	155	......	40

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
1	....	240	1,410	106	222	97	150	36	12	2.0	36	74
2	....	234	783	84	182	93	155	30	16	2.4	30	74
3	....	210	684	95	177	106	140	25	17	2.0	36	73
4	....	353	499	106	225	130	204	30	25	1.8	34	74
5	....	320	459	155	168	155	210	27	36	1.6	36	....

Daily discharge, in second-feet, of Goose Creek near Leesburg, Va., for 1909–1912—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	....	336	441	155	155	182	150	29	32	2.0	30	....
7	863	363	388	130	150	177	118	32	30	2.4	36	....
8	370	216	377	130	106	171	135	34	27	2.8	34	....
9	303	210	353	130	88	155	168	21	25	4.0	36	....
10	155	210	336	118	74	370	166	25	26	11	42	....
11	142	196	320	118	73	513	155	30	27	17	45	....
12	106	210	320	106	155	743	329	34	30	14	42	....
13	106	155	310	102	160	607	391	36	32	11	39	....
14	102	160	281	95	150	405	177	30	25	14	42	....
15	106	863	252	95	118	303	111	29	17	11	36	....
16	118	1,370	225	102	111	2,040	106	49	11	11	42	....
17	130	1,370	210	370	106	775	95	69	7.0	14	57	....
18	142	2,270	182	626	102	751	93	74	5.5	11	59	....
19	2,490	903	177	550	93	743	97	76	4.0	10	65	....
20	743	883	179	370	88	477	106	73	4.0	11	62	....
21	2,040	843	177	336	93	405	95	52	4.6	17	57	....
22	1,460	1,100	177	303	97	384	80	42	4.0	36	65	....
23	1.050	952	174	222	130	320	84	36	3.6	84	69	....
24	763	704	160	499	111	284	80	30	3.0	210	74	....
25	441	630	160	743	193	210	73	27	2.8	106	106	106
26	303	615	163	550	155	196	65	29	2.4	74	80	106
27	271	1,030	163	441	135	177	69	21	2.6	42	84	118
28	271	1,200	160	336	106	423	65	17	3.0	36	95	142
29	265	....	155	240	111	320	62	16	2.0	30	102	142
30	287	....	140	225	106	204	49	11	2.4	36	84	336
31	271	....	130	....	102	....	42	10	....	25	....	336

Day	Jan.	Feb.	Mar.	Apr.	Sept.	Oct.	Nov.	Dec.
1911								
1	225	588	240	240	405	84	130	388
2	303	495	240	196	405	95	140	398
3	588	441	240	196	441	106	150	356
4	665	550	240	271	743	102	160	336
5	370	370	182	924	944	95	155	320
6	370	336	168	626	1,150	88	155	316
7	370	303	168	513	743	91	182	210
8	320	303	168	513	370	91	210	199
9	303	287	182	477	25	97	370	196
10	271	287	271	370	210	102	303	182
11	240	271	370	370	210	106	240	177
12	95	287	588	336	370	102	210	182
13	168	271	646	320	588	102	743	171
14	336	271	550	320	588	97	665	155
15	130	287	513	320	588	102	646	150
16	155	271	441	271	550	106	704	168
17	182	271	550	271	550	93	696	210
18	168	256	550	256	459	1,150	743	240
19	168	271	370	256	370	743	743	303
20	130	271	370	256	370	370	665	370
21	118	271	370	256	271	303	646	388
22	118	271	336	256	84	256	550	477
23	130	256	320	240	303	303	532	743
24	210	256	271	240	106	320	513	823
25	225	256	256	225	95	310	569	903
26	225	256	256	182	95	297	441	944
27	240	256	256	182	84	290	434	1,150
28	240	256	303	182	84	284	370	1,070
29	477	....	370	182	95	182	363	903
30	944	....	550	168	84	177	405	743
31	704	....	240	....	....	155	....	665

Daily discharge, in second-feet, of Goose Creek near Leesburg, Va., for 1909–1912—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	944	240	985	1,070	513	588	441	626	84	704	155	130
2	903	240	944	903	513	665	423	626	42	665	155	135
3	903	225	743	985	513	665	405	704	25	665	155	135
4	903	225	665	823	550	626	388	665	25	665	155	130
5	823	210	588	783	550	550	423	665	25	550	150	155
6	823	210	550	665	550	863	405	743	42	441	150	155
7	743	210	665	823	588	626	370	704	130	370	148	155
8	665	204	665	665	665	588	303	665	240	287	142	150
9	588	204	588	477	626	588	182	665	210	155	142	150
10	513	199	588	513	626	588	130	513	84	155	145	145
11	423	210	588	495	1,150	550	84	441	49	155	145	130
12	405	210	743	532	1,370	513	106	370	25	155	145	130
13	388	204	1,370	477	1,590	513	130	336	11	155	145	130
14	388	199	1,150	441	1,820	513	182	303	7	155	145	130
15	370	199	1,820	405	1,150	550	182	370	7	155	145	130
16	370	204	1,410	405	1,070	743	210	303	7	155	145	182
17	320	210	1,150	441	1,150	944	240	182	7	155	145	182
18	303	240	944	513	863	704	256	155	17	155	145	177
19	303	240	665	550	1,590	783	256	130	405	155	145	171
20	320	550	588	588	1,500	823	256	84	405	155	145	168
21	303	626	477	550	1,240	783	256	74	441	155	145	168
22	303	743	588	550	903	743	271	74	441	155	145	168
23	303	1,370	665	550	823	743	271	84	743	142	145	168
24	271	1,150	704	532	626	665	405	57	7,000	142	140	177
25	271	944	626	513	550	665	370	57	7,000	142	140	182
26	271	985	626	550	513	626	303	57	1,590	142	138	196
27	256	1,590	550	513	513	588	271	84	1,150	155	135	210
28	256	1,150	532	588	588	550	271	130	743	155	130	210
29	256	1,070	2,040	550	665	441	271	130	743	155	130	210
30	256	....	1,370	550	626	459	336	130	743	155	130	3,160
31	256	....	743	....	626	....	665	130	....	155	....	1,590

NOTE.—Discharge, except for periods during which discharge relation was affected by ice, computed from a rating curve fairly well defined between 50 and 1,400 second-feet. Discharge Dec. 20-31, 1909, estimated as given. Mean discharge Jan. 1-6, 1910, estimated at 50 second-feet; Dec. 5-24, 1910, 60 second-feet. Discharge relation probably affected by ice at other periods but no corrections have been made therefor. Discharge Sept. 24 and 25, 1912, when water was over gage, estimated as given.

Monthly discharge of Goose Creek near Leesburg, Va., for 1909–1912.

[Drainage area, 338 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1909						
July 12–31	95	48	67.8	0.201	0.15	B.
August	743	25	71.5	.212	.24	B.
September	130	27	63.5	.188	.21	B.
October	182	27	95.5	.283	.33	B.
November	210	102	163	.482	.54	B.
December	1,150	....	160	.473	.55	C.

Monthly discharge of Goose Creek near Leesburg, Va., for 1909–1912—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1910						
January	2,490	....	439	1.30	1.50	B.
February	2,270	155	648	1.92	2.00	B.
March	1,410	130	321	.950	1.10	B.
April	743	84	255	.754	.84	B.
May	225	73	130	.385	.44	B.
June	2,040	93	397	.117	.13	B.
July	391	42	130	.385	.44	B.
August	76	10	34.8	.103	.12	C.
September	36	2.0	14.6	.043	.05	C.
October	210	1.6	27.5	.081	.09	C.
November	106	30	55.2	.164	.18	B.
December	336	....	89.7	.265	.30	D.
The year	2,490	1.6	208	.615	7.19	
1911						
January	944	95	296	0.876	1.01	C.
February	588	256	313	.926	.96	D.
March	646	168	341	1.01	1.16	B.
April	904	168	314	.929	1.04	B.
September	1,150	25	379	1.12	1.25	B.
October	1,150	84	219	.648	.75	B.
November	743	130	428	1.27	1.42	B.
December	1,150	150	446	1.32	1.52	B.
1912						
January	944	256	465	1.38	1.59	D.
February	1,590	199	492	1.46	1.58	D.
March	2,040	477	849	2.51	2.89	B.
April	1,070	405	600	1.78	1.99	B.
May	1,820	513	859	2.54	2.93	B.
June	944	441	642	1.90	2.12	B.
July	665	84	292	.864	1.00	B.
August	743	57	331	.979	1.13	B.
September	[a] 7,000	7	748	2.21	2.47	D.
October	704	142	254	.751	.87	B.
November	155	130	144	.426	.48	C.
December	3,160	130	304	.899	1.04	B.
The year	7,000	7	498	1.47	20.09	

[a] Estimated.

OCCOQUAN CREEK NEAR OCCOQUAN, VA.

Location.—At Frank Davis's farm, about one mile above Beaverdam Creek, and about 4½ miles upstream from and northwest of Occoquan.

Drainage area.—546 square miles.

Records available.—February 14, 1913, to December 31, 1914.

Gage.—Friez automatic, on left bank, installed April 27, 1913, referred to an inclined staff on left bank about 150 feet upstream; previous to this date a temporary vertical staff on opposite bank.

Discharge measurements.—Made from cable about 75 feet below the automatic gage, or by wading.

Channel and control.—Gravel and large rocks; control practically permanent. Point of zero flow at 0.4 foot gage height.

Extremes of discharge.—Maximum stage recorded 1913-14: 18.16 feet, 8 A. M., April 13, 1913, determined by levels to stake set by observer; discharge, 15,900 second feet. Minimum stage recorded: 1.39, September 13 to 18, 1913; discharge, 9.7 second-feet.

Winter flow.—Discharge relation affected by ice.

Accuracy.—Rating curve well defined. Results excellent except for extreme high and low stages.

Coöperation.—Expense of installation and maintenance borne by Potomac Electric Power Co., of Washington, D. C.

Discharge measurements of Occoquan Creek near Occoquan, Va., in 1913–14.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1913			
May 10	G. C. Stevens	2.62	117
May 27	Stevens and Walters	4.06	517
June 3	G. C. Stevens	3.34	280
June 5	M. I. Walters	3.02	208
June 21	Mathers and Padgett	2.23	60.2
July 7	M. I. Walters	2.14	64.4
July 14	Batchelder and Walters	1.96	38.6
July 22	C. L. Batchelder	1.94	37.0
Aug. 27	J. G. Mathers	1.59	16.8
1914			
Jan. 4	J. G. Mathers	13.20	8,730
Jan. 5	do	9.70	4,580
Jan. 9	Mathers and Harrington	4.30	623
Jan. 15	Peterson and Walters	2.91	187
Jan. 26	B. J. Peterson	5.41	1,120
Feb. 14 [a]	do	3.52	256
Feb. 20 [b]	do	4.48	598
Feb. 21 [b]	do	4.65	647
Mar. 11	Peterson and Morgan	7.28	2,380
May 6	B. J. Peterson	4.92	874
Sept. 23	J. H. Morgan	1.60	13.9
Sept. 24	J. G. Mathers	1.57	15.5

[a] Discharge relation affected by ice. One-fourth channel frozen over at control; complete ice cover below control.

[b] Discharge relation affected by ice. Ice cover on overflow section at control; complete ice cover 100 feet below control.

Daily gage height, in feet, of Occoquan Creek near Occoquan, Va., for 1913–14.

[W. V. Davis and Sadie Bradley, observers.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
1	......	......	3.17	4.0	3.07	......	2.24	1.96	1.63	6.0	2.28	2.52
2	......	......	2.89	3.62	2.96	......	2.17	4.25	1.59	3.21	2.20	2.47
3	......	......	2.75	3.44	2.91	3.35	2.16	2.81	1.55	3.04	2.15	2.43
4	......	......	2.65	3.36	......	......	2.17	2.37	1.52	2.52	2.10	2.40
5	......	......	2.59	3.33	......	3.02	......	2.09	1.50	2.22	2.05	2.33
6	......	......	2.58	3.25	......	......	......	1.98	1.49	2.07	2.00	2.26
7	......	......	2.53	3.07	......	......	2.13	1.91	1.49	1.92	2.00	2.27
8	......	......	2.47	2.99	......	......	2.01	1.86	1.48	1.82	2.00	2.29
9	......	......	2.41	2.91	......	......	1.96	1.85	1.48	1.80	2.10	2.35
10	......	......	2.43	2.87	2.60	......	2.07	1.82	1.45	1.80	3.01	2.35
11	......	......	2.65	2.85	2.55	......	2.05	1.92	1.44	1.79	2.88	2.24
12	......	......	3.44	14.2	2.50	2.57	1.98	2.02	1.41	1.74	2.59	2.19
13	......	......	3.03	16.6	2.49	......	1.99	2.10	1.39	1.83	2.43	2.15
14	......	3.2	11.5	11.3	2.53	......	1.96	2.03	1.39	2.04	2.34	2.13
15	......	2.92	10.2	6.8	2.59	......	1.93	1.99	1.39	1.93	2.23	2.11
16	......	2.91	8.2	8.7	2.65	2.40	1.96	1.90	1.39	1.88	2.60	2.05
17	......	2.88	5.45	9.2	......	......	1.95	1.95	1.39	1.83	5.1	2.07
18	......	2.91	4.55	5.45	......	2.40	1.97	1.90	1.39	1.80	3.64	2.06
19	......	2.87	4.15	4.9	......	2.31	2.00	1.89	1.41	1.82	3.15	2.07
20	......	2.79	4.15	4.15	......	2.26	2.04	1.83	1.45	1.90	2.92	2.06
21	......	2.81	5.1	3.87	......	2.23	2.07	1.78	1.72	2.58	2.74	2.07
22	......	2.88	4.55	3.79	......	2.25	1.93	1.74	4.8	2.34	2.56	2.08
23	......	2.88	3.88	3.69	......	2.29	1.91	1.74	2.94	2.13	2.49	2.08
24	......	2.79	3.59	3.57	......	2.27	1.83	1.74	2.40	2.07	2.38	3.21
25	......	2.69	3.51	3.45	......	2.45	1.90	1.73	2.09	3.79	2.29	3.92
26	......	2.61	3.56	3.33	......	3.41	1.95	1.69	1.94	5.8	2.26	9.6
27	......	2.63	10.0	3.27	4.1	3.11	1.87	1.60	1.82	3.71	2.21	6.0
28	......	2.79	6.8	3.48	......	2.61	1.89	1.59	1.74	3.04	2.23	4.2
29	......	......	4.9	3.37	......	2.45	2.01	1.58	1.71	2.73	2.31	3.69
30	......	......	4.35	3.19	......	2.32	1.88	1.59	1.70	2.51	2.46	3.47
31	......	......	4.45	......	......	......	1.85	1.68	......	2.38	......	3.22
1914												
1	3.11	8.2	4.25	3.71	3.86	2.28	2.86	1.92	2.32	1.50	1.60	1.85
2	3.06	4.85	4.7	4.1	3.61	2.20	2.54	1.84	2.09	1.49	1.61	1.83
3	5.55	4.2	4.4	3.89	3.48	2.24	2.35	......	2.03	1.47	1.62	1.87
4	12.9	3.98	4.8	3.71	3.34	2.27	2.28	1.78	1.99	1.48	1.65	1.88
5	9.3	3.75	5.95	3.45	3.64	2.48	2.44	......	2.28	1.51	1.66	1.94
6	6.4	3.72	5.0	3.30	4.65	2.43	4.55	......	2.09	1.52	1.65	1.99
7	5.15	7.4	4.7	3.20	3.76	2.48	4.2	1.78	1.92	1.52	1.63	2.46
8	4.55	5.5	5.75	3.22	3.42	2.43	3.33	......	1.77	1.52	1.64	3.48
9	4.25	4.25	6.5	4.6	3.34	2.23	3.22	......	......	1.53	1.67	3.34
10	4.0	3.89	6.1	3.86	3.37	2.25	2.61	......	......	1.55	1.68	2.88
11	3.68	3.83	7.1	3.48	3.12	2.19	2.78	1.70	1.64	1.56	1.70	2.72
12	3.40	3.65	5.3	3.28	3.05	2.11	2.73	1.99	......	1.56	1.69	2.88
13	3.03	3.26	4.85	3.16	2.93	2.05	2.51	2.54	......	1.57	1.70	2.89
14	3.15	3.49	5.45	3.03	2.98	2.00	4.60	2.38	1.70	1.58	1.71	3.62
15	2.90	3.32	8.45	4.05	3.19	1.99	3.63	2.10	......	1.59	2.09	3.84
16	2.83	3.37	8.4	7.9	2.93	2.01	2.94	2.01	......	1.70	3.02	3.61
17	2.86	3.27	6.9	5.25	2.79	1.99	2.62	1.89	......	1.83	3.23	3.10
18	2.86	3.13	7.3	4.35	2.72	1.97	4.5	......	1.62	2.00	2.65	2.65
19	2.80	3.35	6.0	4.0	2.67	1.92	3.21	......	1.62	2.21	2.37	2.46
20	2.79	4.45	5.0	5.4	2.62	1.97	2.52	......	......	2.04	2.20	2.44
21	2.82	4.6	4.7	7.3	2.61	2.02	2.29	2.33	......	1.92	2.06	2.67
22	2.88	4.2	5.05	4.95	2.63	2.77	2.24	3.20	1.60	1.90	1.95	4.51
23	2.80	4.1	5.4	4.3	2.52	2.49	2.12	2.20	......	1.86	1.88	3.90
24	2.80	3.86	4.85	3.95	2.43	2.65	2.02	1.88	1.57	1.77	1.82	3.39
25	8.1	3.57	4.3	3.75	2.32	2.69	1.99	......	1.62	1.71	1.80	2.99

Daily gage height, in feet, of Occoquan Creek near Occoquan, Va., for 1913–14—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
26	5.6	3.41	4.0	7.4	2.27	2.83	1.99	....	1.64	1.68	1.83	2.76
27	4.45	3.37	3.87	7.6	2.29	2.71	2.38	....	1.60	1.65	1.84	2.70
28	4.1	3.56	3.79	5.0	2.30	4.7	2.13	1.87	1.57	1.66	1.85	2.52
29	3.80	....	3.94	4.35	2.33	6.6	2.03	4.45	1.54	1.65	1.85	2.46
30	3.60	....	3.74	4.2	2.33	3.74	1.95	3.16	1.50	1.62	1.86	2.94
31	5.2	....	3.95	....	2.34	....	1.92	2.69	....	1.60	....	4.8

NOTE.—Temporary staff gage used Feb. 14 to Apr. 26, 1913. Beginning Apr. 27, 1913, records are from automatic gage except for May 27, June 3, 5, 12, 16, and 18, 1913, and Aug. 4, 7, 11, and Sept. 8 to Oct. 11, 1914, when staff gages were read. Discharge relation affected by ice Feb. 11 to Mar. 4, Mar. 8, Dec. 16-19 and 26-29, 1914.

Daily discharge, in second-feet, of Occoquan Creek near Occoquan, Va., for 1913–14.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
1	....	....	241	500	216	360	65	38	19	1,460	70	103
2	....	....	174	371	189	340	57	590	17	252	60	96
3	....	....	144	317	178	290	56	156	15	208	55	90
4	....	....	125	293	170	246	57	81	14	103	50	85
5	....	....	114	284	161	203	56	49	13	62	46	76
6	....	....	113	262	152	175	54	40	13	47	41	67
7	....	....	105	216	143	225	53	35	13	35	41	68
8	....	....	96	196	134	200	42	32	12	29	41	71
9	....	....	86	178	125	175	38	31	12	28	50	78
10	....	....	90	169	116	155	47	29	12	28	200	78
11	....	....	125	165	108	135	46	35	11	27	172	65
12	....	....	317	10,100	100	111	40	43	10	24	114	59
13	....	....	206	13,600	98	104	40	50	9.7	30	90	55
14	....	249	6,570	6,330	105	98	38	44	9.7	45	77	53
15	....	180	5,080	2,080	114	91	36	40	9.7	36	64	51
16	....	178	3,210	3,660	125	85	38	40	9.7	33	116	46
17	....	172	1,200	4,110	115	85	38	38	9.7	30	965	47
18	....	178	718	1,200	135	85	39	34	9.7	28	377	46
19	....	169	552	895	115	73	41	33	10	29	236	47
20	....	152	552	552	115	67	45	30	12	34	180	46
21	....	156	1,000	454	100	64	47	27	23	113	142	47
22	....	172	718	426	115	66	36	24	840	77	110	48
23	....	172	458	392	6,000	71	35	24	185	53	98	48
24	....	152	362	356	13,000	68	30	24	85	47	82	252
25	....	132	338	320	6,000	92	34	24	49	422	71	467
26	....	118	353	284	2,200	308	38	22	37	1,340	67	4,480
27	....	121	4,880	267	535	226	32	17	29	398	61	1,460
28	....	152	2,080	329	700	118	33	17	24	208	64	565
29	....	....	895	296	790	92	42	16	23	140	73	392
30	....	....	630	246	500	75	33	17	22	102	94	326
31	....	....	672	....	430	....	31	21	....	82	....	254
1914												
1	226	3,160	520	398	446	70	167	35	75	13.0	17.0	31
2	213	840	655	530	368	60	106	30	49	12.5	17.5	30
3	1,200	565	585	456	329	65	78	28	44	12.0	18.0	32
4	8,340	488	770	398	287	68	70	27	40	12.5	19.5	33
5	4,180	410	1,430	320	377	97	91	27	70	13.5	20.0	37

Daily discharge, in second-feet, of Occoquan Creek near Occoquan, Va., for 1913–14—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
6	1,730	401	915	275	748	90	702	27	49	14.0	19.5	40
7	990	2,490	770	249	413	97	565	27	35	14.0	18.5	97
8	702	1,170	1,280	254	311	90	284	26	26	14.0	19.0	329
9	582	582	1,800	725	287	64	254	24	24	14.0	20.5	288
10	495	456	1,520	446	296	66	118	23	21	15.0	21.0	172
11	389	420	2,250	329	228	59	150	22	19	15.5	22.0	138
12	305	300	1,060	270	210	51	140	40	20	15.5	21.5	172
13	206	180	840	239	183	46	102	106	21	16.0	22.0	174
14	236	245	1,140	206	194	41	725	82	22	16.0	22.5	389
15	176	210	3,380	512	246	40	374	50	21	16.5	61	445
16	161	215	3,340	2,900	183	42	185	42	20	22.0	213	230
17	167	215	2,100	1,040	152	40	120	33	19	30	261	144
18	167	195	2,410	620	138	39	680	30	18	41	125	106
19	154	230	1,460	495	129	35	252	26	18	61	81	91
20	152	595	915	1,120	120	39	103	22	17	45	60	91
21	158	640	770	2,410	118	43	71	76	17	35	46	132
22	172	505	940	890	121	148	65	249	17	34	38	722
23	154	440	1,120	600	103	98	52	60	16	32	33	466
24	154	315	840	478	90	125	43	33	16	26	29	302
25	3,070	230	600	410	75	132	40	32	18	22.5	28	196
26	1,220	235	495	2,490	68	161	40	32	19	21.0	30	140
27	660	255	450	2,650	71	136	82	32	17	19.5	30	110
28	530	310	422	915	72	770	53	32	16	20.0	31	92
29	425	....	474	620	76	1,870	44	660	15	19.5	31	92
30	365	....	407	565	76	407	38	239	13	18.0	32	189
31	1,020	....	478	....	77	....	35	132	....	17.0	....	838

NOTE.—Discharge determined from a well-defined rating curve, except as follows: May 4-9, June 4, 13-15, and July 5-6, 1913, and for days for which records are lacking during August and September, 1914, interpolated: May 17-26, May 28 to June 2, and June 6-11, 1913, estimated from rainfall records; Feb. 11 to Mar. 4, Mar. 8, Dec. 16-19, 26-29, 1914, when discharge relation was affected by ice, estimated from discharge measurements, climatologic data, and study of automatic gage record. Mean discharge Nov. 15-17, Dec. 7-9, 14-15, 21-23, and 30-31, determined from two-hourly gage heights.

Monthly discharge of Occoquan Creek near Occoquan, Va., for 1913–14.

[Drainage area, 546 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1913						
February 14–28	249	118	164	0.300	0.17	A.
March	6,570	86	1,040	1.90	2.19	A.
April	13,600	165	1,630	2.99	3.34	B.
May	13,000	98	1,070	1.96	2.26	C.
June	360	64	149	.273	.30	B.
July	65	31	42.5	.078	.09	A.
August	590	16	54.9	.101	.12	A.
September	840	9.7	51.9	.095	.11	B.
October	1,540	24	184	.337	.39	A.
November	1,000	41	137	.240	.27	A.
December	1,480	46	315	.577	.67	A.

Monthly discharge of Occoquan Creek near Occoquan, Va., for 1913–14—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1914						
January	8,340	152	926	1.70	1.96	A.
February	3,160	180	582	1.07	1.11	B.
March	3,380	407	1,170	2.14	2.47	A.
April	2,900	206	794	1.45	1.62	A.
May	748	68	213	.390	.45	A.
June	1,870	35	170	.311	.35	A.
July	725	35	188	.344	.40	A.
August	660	22	74.3	.136	.16	B.
September	75	13	26.4	.048	.05	B.
October	61	12.0	21.9	.040	.05	A.
November	261	17.0	46.9	.086	.10	A.
December	838	30	205	.375	.43	A.
The year	8,340	12.0	367	.672	9.15	

NOTE.—See footnotes to tables of daily discharge.

RAPPAHANNOCK RIVER BASIN.

RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA.

Location.—About 3½ miles above Fredericksburg, and about 1½ miles above the dam of the Spottsylvania Power Co.

Drainage area.—1,590 square miles.

Records available.—September 19, 1907, to December 31, 1914.

Gage.—Vertical staff installed November 4, 1913, to replace chain gage destroyed October 31, 1913. Original gage was a vertical staff, which was destroyed February 14, 1908, and replaced February 20, 1908, by a chain gage under the cable. All three gages were referred to the same datum and the locations were practically the same. Gage read twice daily.

Discharge measurements.—Made from cable at the gage. At extremely low stages measurements can be made by wading or from a bridge over the power canal.

Channel and control.—Both banks wooded; right bank will overflow at stage of about 15 feet, left bank at about 12 feet. One channel, bed composed of bowlders and somewhat rough. Current sluggish at extreme low water. Control is a rocky section a few hundred feet below the gage, and has remained practically permanent.

Extremes of discharge.—Maximum stage recorded 1907-1914: 10.2 feet at 9 A. M., April 13, 1913; discharge, 32,000 second-feet. Minimum stage recorded: 0.30 foot at 3 P. M., August 21, 1914; discharge, 72 second-feet.

Winter flow.—Discharge relation not seriously affected by ice.

Accuracy.—Accurate discharge measurements at low stages are difficult. A rating curve well defined except at extreme low stages has been developed. Estimates of discharge for 1907-1911 as published herewith are revisions of those published by U. S. Geological Survey.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the Spottsylvania Power Co. (formerly the Fredericksburg Power Co.).

Discharge measurements of Rappahannock River near Fredericksburg, Va., in 1907–1915.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1907			
Dec. 7	C. C. Covert	1.78	1,110
Dec. 9	do	1.76	1,060
1908			
Feb. 20	A. H. Horton	3.98	5,050
Apr. 29	Follansbee and Barrows	1.57	813
July 16	R. H. Bolster	1.19	437
1909			
July 20	G. C. Stevens	1.12	439
Sept. 8[a]	Bolster and Stevens	.70	242
1910			
Sept. 8	G. C. Stevens	.95	291
1911			
July 26[b]	G. C. Stevens[c]	.70	214
1912			
May 13[d]	J. G. Mathers	9.20	26,700
1913			
Sept. 3[b]	G. C. Stevens[c]	.64	166
Sept. 10	G. C. Stevens[c]	.56	[e] 132
1915			
Jan. 20	G. C. Stevens	3.92	4,970

[a] Canal measured at bridge and river by wading below dam. Discharge probably too high due to increased flow from storage dam.

[b] Made by wading one-half mile below gage.

[c] Assisted by Cecil L. Reid, engineer for Spottsylvania Power Co.

[d] Surface velocities observed and coefficient of 0.85 used to reduce to mean velocity.

[e] Discharge is mean of four measurements of power canal below dam. Entire flow of river was being diverted into power canal.

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914.

[J. W. Franklin, observer.]

Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.
1907					1907					1907				
1	......	1.98	1.25	2.10	11	......	1.48	2.28	5.30	21	1.22	1.25	2.22	2.40
2	......	1.82	1.25	2.10	12	......	1.48	1.95	4.00	22	1.22	1.28	2.20	2.30
3	......	1.70	3.28	2.00	13	......	1.45	1.75	3.10	23	2.22	1.25	2.25	3.98
4	......	1.68	2.50	1.90	14	......	1.40	1.68	3.25	24	8.85	1.25	5.50	5.75
5	......	1.65	1.78	1.90	15	......	1.40	1.60	4.72	25	3.30	1.25	5.35	3.80
6	......	1.65	1.65	1.75	16	......	1.35	1.55	3.62	26	2.65	1.22	3.52	3.20
7	......	1.52	1.82	1.75	17	......	1.35	1.55	3.15	27	2.28	1.20	2.95	3.00
8	......	1.55	2.05	1.75	18	......	1.35	1.58	2.92	28	2.10	1.30	2.62	3.00
9	......	1.60	1.72	1.75	19	1.22	1.35	2.35	2.80	29	2.45	1.58	2.42	2.68
10	......	1.52	1.78	2.98	20	1.20	1.30	2.38	2.55	30	2.38	1.42	2.30	2.80
										31	......	1.30	......	3.18

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	3.05	2.1	3.2	2.7	1.35	3.35	2.1	2.15	1.8	2.22	2.55	1.5
2	2.48	2.2	3.3	2.55	1.25	2.85	2.3	1.85	1.72	2.15	2.25	1.55
3	2.38	2.1	3.05	2.5	1.65	2.35	2.5	1.72	1.6	2.0	2.1	1.4
4	2.32	2.1	2.9	2.25	1.55	2.8	2.45	1.6	1.55	1.9	2.2	1.5
5	2.30	2.6	2.7	2.18	1.55	3.95	2.45	1.5	1.5	1.8	2.1	1.5
6	2.25	3.0	4.2	2.2	1.65	2.65	2.35	1.4	7.1	1.62	1.9	1.44
7	2.6	2.3	4.3	2.1	2.55	2.35	2.25	1.3	3.2	1.7	1.9	1.82
8	6.6	2.95	3.6	2.1	3.38	2.25	2.1	1.3	2.3	1.6	1.8	1.68
9	3.88	2.7	3.1	2.05	3.35	2.15	1.62	1.45	2.0	1.52	1.7	1.5
10	2.65	2.6	3.15	2.2	2.15	1.95	1.45	1.42	1.9	1.65	1.75	1.55
11	3.85	2.6	3.3	2.22	2.1	2.3	1.35	1.5	1.7	1.78	1.7	1.6
12	8.5	2.88	2.85	2.0	2.05	2.25	1.3	1.35	1.7	2.6	1.68	3.05
13	8.8	3.38	2.8	2.12	1.95	2.05	1.25	1.3	1.52	2.05	1.85	2.72
14	4.82	....	2.62	1.9	1.88	1.95	1.15	1.3	1.42	1.85	1.8	2.0
15	3.9	....	2.4	1.95	1.78	1.85	1.1	1.2	1.45	1.8	1.75	1.78
16	3.52	....	2.48	1.9	1.75	3.85	1.05	1.18	1.3	1.65	2.0	1.78
17	3.25	....	2.4	1.75	1.7	3.45	1.0	1.1	1.35	1.6	2.1	1.75
18	3.0	....	2.5	1.85	1.65	2.75	.9	2.8	1.3	1.6	1.9	1.6
19	2.8	....	2.5	1.95	1.65	2.75	1.1	2.3	1.3	1.55	1.9	1.7
20	2.7	3.95	2.4	2.0	3.8	2.55	1.1	1.6	1.25	1.6	1.85	1.65
21	2.0	3.75	2.2	1.9	4.75	2.3	1.0	1.35	1.3	1.55	1.7	1.5
22	2.55	3.05	2.2	1.8	8.3	2.05	.9	1.25	1.45	1.5	1.75	1.55
23	2.5	3.0	2.35	1.8	4.85	1.95	1.6	1.3	1.5	1.42	1.7	1.55
24	2.4	2.82	2.45	1.6	3.45	2.15	2.2	1.35	1.5	1.4	1.55	1.4
25	2.4	2.6	2.42	1.6	3.2	1.8	2.1	1.25	1.45	3.7	1.6	1.75
26	2.15	3.9	2.3	1.6	3.0	1.75	2.75	8.3	1.4	2.75	1.55	1.85
27	2.52	5.9	2.12	1.48	2.8	1.7	3.05	5.3	1.35	2.55	1.5	1.8
28	2.62	4.0	2.15	1.4	2.55	1.6	3.05	4.4	1.4	2.25	1.6	1.95
29	2.22	3.45	2.2	1.3	2.45	1.5	2.55	2.3	5.0	2.38	1.52	2.15
30	2.2	....	2.25	1.3	2.4	1.35	2.2	2.1	2.85	4.2	1.45	2.22
31	2.2	....	2.35	....	2.95	....	2.1	2.0	....	2.85	....	3.28
1909												
1	3.60	2.45	2.72	2.14	2.17	1.78	2.20	1.10	1.12	0.72	0.78	0.90
2	2.75	2.38	2.55	2.10	2.24	1.70	1.85	1.32	.98	.71	....	.94
3	2.52	2.22	2.50	2.07	2.10	1.85	1.60	1.60	.85	.70	....	.86
4	2.68	2.12	4.42	2.02	2.02	3.82	1.50	1.22	.82	.68	....	.84
5	2.95	2.15	3.22	2.02	1.92	5.55	1.45	1.12	.82	.67	....	.86

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
6	5.75	2.10	2.78	1.92	1.84	5.05	1.40	1.22	.82	.65	....	.86
7	3.55	2.05	3.00	1.90	1.84	3.40	1.48	1.22	.75	.70	....	.86
8	2.95	2.10	3.45	1.87	1.82	4.65	1.45	1.15	.72	.70	.81	.91
9	2.70	2.15	2.98	1.82	1.77	4.10	1.40	1.10	.74	.70	.82	.94
10	2.60	5.18	3.00	1.82	1.80	4.00	1.30	1.05	.79	.70	.85	.90
11	2.55	4.95	2.78	1.77	1.80	4.18	1.28	1.00	1.00	.68	.90	.90
12	2.38	3.40	2.52	1.77	1.90	3.45	1.28	.82	1.47	.68	.94	.90
13	2.25	2.90	2.51	1.80	1.80	2.80	1.28	.80	1.32	1.78	.92	1.12
14	2.32	2.72	2.88	6.47	1.72	6.65	1.20	.72	1.00	1.25	.94	3.54
15	2.45	2.65	2.68	6.10	1.67	5.65	1.28	.82	.90	1.04	.90	2.36
16	2.78	2.55	2.38	3.77	1.62	3.42	1.55	1.02	.83	.92	.90	1.78
17	2.72	2.55	2.28	3.24	1.57	2.95	1.38	1.55	1.12	.92	.94	1.30
18	2.62	2.42	2.25	2.97	1.52	3.52	1.30	1.95	1.59	.88	.92	1.35
19	2.55	2.32	2.25	2.82	1.46	2.85	1.25	1.55	1.28	.82	.92	1.26
20	2.42	3.72	2.20	2.68	1.42	2.55	1.20	1.22	1.14	.78	.90	1.12
21	2.52	3.20	2.15	2.64	1.80	2.22	1.12	1.22	1.04	.80	.84	1.02
22	3.25	2.92	2.15	2.80	4.94	2.12	1.05	1.75	.94	.79	.82	1.13
23	3.45	2.95	2.10	2.87	3.42	2.02	1.00	1.15	.87	.78	.88	1.16
24	4.78	4.35	2.05	3.17	2.84	2.00	.90	1.00	1.02	.82	.99	1.02
25	4.55	4.22	2.08	2.92	2.54	1.90	1.08	.95	1.43	.80	1.06	1.06
26	3.50	3.25	2.58	2.50	2.30	1.80	1.00	.92	1.04	.82	1.06	1.07
27	2.90	3.08	2.20	2.37	2.32	1.90	.90	.85	1.00	.82	.97	1.12
28	2.60	2.90	2.35	2.30	2.60	1.88	.90	.80	.96	.80	.93	1.16
29	2.48	....	3.15	2.24	2.37	2.78	.80	1.15	.86	.78	.91	1.04
30	2.78	....	2.58	2.17	2.07	2.72	.85	1.32	.74	.79	.92	1.07
31	2.62	....	2.28	....	1.87	....	1.02	1.42	....	.78	....	1.13
1910												
1	1.16	1.76	4.38	1.47	2.14	1.40	1.73	1.27	0.97	0.60	1.08	1.33
2	1.12	1.68	3.85	1.45	2.10	1.36	1.59	1.23	1.07	.62	1.08	1.17
3	1.18	1.78	3.15	1.60	2.02	1.36	1.46	1.63	1.47	.57	1.11	1.10
4	1.64	2.21	2.86	1.85	1.84	1.38	6.49	1.49	1.43	.50	1.18	.98
5	2.04	2.58	2.58	1.96	1.80	1.47	5.15	1.27	1.24	.48	1.16	.98
6	1.46	2.46	2.43	1.76	1.77	2.01	2.90	1.21	1.15	.48	1.08	1.02
7	1.93	1.80	2.33	1.69	1.64	1.93	2.25	1.14	1.06	.62	1.06	1.03
8	3.30	1.86	2.17	1.63	1.69	1.56	2.05	1.63	.97	1.31	1.06	1.18
9	3.69	1.96	2.07	1.52	1.74	1.48	2.05	1.35	.92	2.16	1.03	1.24
10	3.07	1.80	1.97	1.43	1.62	2.40	1.94	1.23	.83	1.94	1.02	1.17
11	2.48	1.74	2.01	1.39	1.60	3.72	2.15	1.13	.80	1.42	.99	1.16
12	2.52	1.53	2.13	1.39	1.61	5.76	2.69	1.27	.78	1.12	1.00	1.15
13	2.38	1.48	2.17	1.41	2.04	5.83	4.25	1.21	.76	1.01	1.00	1.12
14	2.27	1.62	2.01	1.50	2.04	4.48	3.59	1.14	1.04	.96	1.00	1.15
15	2.17	1.72	1.91	1.46	1.78	3.66	2.55	1.12	1.31	.92	1.00	1.18
16	2.30	1.93	1.81	1.41	1.64	3.18	2.13	1.21	1.06	.87	1.02	1.20
17	1.88	2.93	1.77	3.38	1.60	5.50	2.15	1.17	.87	.82	1.03	1.32
18	1.78	6.35	1.75	4.51	1.58	3.90	2.95	1.13	.82	.80	1.00	1.18
19	2.30	3.85	1.69	3.51	1.52	3.34	4.29	1.11	.77	.80	.99	1.22
20	2.32	3.09	1.66	2.95	1.48	3.15	3.08	1.09	.73	.77	.98	1.32
21	2.12	2.70	1.63	2.57	1.68	3.14	2.29	1.07	.72	1.98	.98	1.26
22	5.65	3.42	1.61	2.37	1.65	2.42	2.04	1.19	.72	1.74	1.00	1.18
23	3.65	3.20	1.57	2.17	2.20	2.34	1.84	1.21	.73	3.14	1.00	1.16
24	3.00	2.71	1.57	3.01	1.81	2.14	1.73	1.19	.71	2.16	1.00	1.34
25	2.48	2.42	1.56	2.67	1.80	2.04	1.61	1.17	.70	1.67	1.02	2.34
26	2.38	2.21	1.55	3.11	2.32	1.86	1.57	1.11	.67	1.47	1.02	2.11
27	2.19	2.07	1.49	2.70	1.82	1.80	1.53	1.17	.65	1.37	1.02	1.90
28	2.30	2.20	1.49	2.53	1.68	1.82	1.49	1.15	.64	1.28	1.06	1.86
29	2.50	....	1.45	2.33	1.58	2.22	1.39	1.11	.62	1.22	1.13	1.84
30	2.15	....	1.49	2.19	1.42	1.82	1.37	1.03	.62	1.17	1.27	2.74
31	1.92	....	1.49	....	1.40	....	1.32	.99	....	1.11	....	2.68

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
1	2.8	2.7	1.65	1.8	1.9	1.17	1.11	0.49	4.7	0.97	1.41	1.85
2	4.5	2.6	1.6	1.7	1.85	1.48	1.05	.51	2.8	.96	1.39	1.75
3	4.0	2.5	1.6	1.65	1.8	1.28	.97	.46	2.5	.96	1.34	1.65
4	5.8	2.35	1.55	1.65	1.7	1.12	.85	.55	3.2	1.02	1.27	1.6
5	3.8	2.25	1.55	3.2	1.65	1.05	.83	2.15	2.45	1.03	1.27	1.55
6	2.9	2.1	1.55	4.0	1.6	1.30	.77	3.0	1.8	1.01	1.30	1.5
7	2.6	2.05	1.55	3.1	1.6	1.38	.87	2.3	1.65	.99	2.9	1.5
8	2.3	2.05	1.65	2.8	1.55	1.39	.89	1.6	1.35	1.01	2.45	1.49
9	2.25	2.45	1.6	2.8	1.6	1.44	.95	1.20	1.23	1.07	2.05	1.47
10	2.05	2.6	1.95	2.8	1.6	1.28	.97	.97	2.35	1.17	2.0	1.47
11	1.9	2.3	3.1	2.7	1.55	1.24	.81	.91	2.35	1.06	1.9	1.43
12	1.85	2.1	2.45	2.4	1.5	1.26	.84	.78	2.6	1.05	1.8	1.45
13	2.0	2.05	2.1	2.3	1.43	1.36	1.19	.80	2.05	1.10	1.85	1.43
14	2.45	1.95	2.3	2.2	1.36	1.6	.95	.80	1.55	1.13	1.9	1.41
15	2.3	1.9	2.35	2.2	1.34	1.40	.85	1.29	1.35	1.01	1.9	1.47
16	2.1	1.85	2.25	2.25	1.34	1.17	0.77	1.19	1.33	1.03	2.2	2.5
17	1.9	1.8	2.05	2.15	1.31	1.02	.74	.95	1.33	1.06	2.0	4.0
18	1.8	1.8	2.0	2.05	1.31	1.00	.69	.84	1.31	4.3	1.95	2.6
19	1.75	1.8	2.0	2.0	1.28	.97	.62	.73	1.23	3.6	2.25	2.2
20	1.75	1.8	2.15	2.2	1.25	1.06	.65	.69	1.15	2.45	2.05	2.0
21	1.75	2.35	2.05	2.2	1.19	1.02	.54	.66	1.39	1.95	1.9	2.0
22	1.75	2.15	1.9	2.05	1.18	1.00	.62	.60	1.21	1.95	1.75	2.0
23	2.3	1.9	1.8	2.2	1.15	.91	.57	.55	1.11	2.25	1.65	5.3
24	2.25	1.85	1.75	2.4	1.18	.87	.57	.52	1.09	2.25	1.7	4.5
25	2.1	1.8	1.65	2.2	1.15	1.20	.54	.49	1.04	1.9	2.0	3.7
26	2.05	1.75	1.6	2.0	1.11	2.1	.67	.48	1.65	1.7	1.8	3.1
27	2.4	1.7	1.6	1.95	1.10	1.7	.80	.53	1.43	1.65	1.7	3.4
28	2.35	1.7	1.9	1.85	1.07	1.65	1.10	1.25	1.06	1.55	1.7	3.1
29	2.25	....	1.85	1.85	1.04	1.75	.91	1.35	.97	1.47	2.0	2.6
30	2.9	....	1.85	1.85	1.00	1.36	.81	1.65	.99	1.42	2.5	2.4
31	3.2	....	1.95	....	1.00	....	.53	3.2	....	1.42	....	2.5
1912												
1	2.7	2.4	3.0	3.5	1.95	2.0	1.65	2.6	1.02	2.15	1.44	1.45
2	2.35	2.2	2.8	3.2	1.9	1.9	1.65	2.1	.97	2.05	1.44	1.44
3	2.2	2.25	2.5	3.7	1.85	1.85	1.7	1.55	1.24	1.95	1.43	1.48
4	2.25	2.2	2.35	3.1	1.75	1.75	1.55	1.40	1.42	1.85	1.39	1.5
5	2.2	1.85	2.35	2.7	1.75	1.75	1.38	1.28	1.20	1.75	1.40	1.49
6	1.75	1.75	2.2	2.6	1.75	1.7	1.32	1.18	1.10	1.75	1.39	1.75
7	2.2	1.8	2.2	2.6	1.85	2.25	1.28	1.10	1.16	1.65	1.55	1.9
8	2.25	1.8	2.8	2.5	3.8	2.05	1.25	1.07	3.0	1.65	5.4	1.85
9	2.25	1.8	3.0	2.35	3.9	1.85	1.23	1.05	2.3	1.55	3.4	1.6
10	2.1	1.7	2.9	2.25	2.6	1.65	1.18	2.2	1.7	1.5	2.8	1.55
11	2.0	1.65	2.6	2.2	2.25	1.55	1.11	2.6	1.26	1.48	2.3	1.48
12	2.05	1.65	2.8	2.15	3.5	1.5	1.30	2.2	1.12	1.47	2.15	1.5
13	2.05	1.65	6.9	2.1	9.0	1.45	1.65	1.75	1.01	1.44	2.05	1.48
14	2.2	1.6	4.2	2.15	5.8	1.45	1.55	1.6	.95	1.44	2.0	1.40
15	2.2	1.6	6.1	2.2	3.6	1.49	4.5	1.7	.94	1.55	1.95	1.40
16	2.2	1.65	7.7	2.15	5.3	1.43	3.2	1.5	.93	1.55	1.85	1.43
17	2.2	1.7	5.5	2.35	6.4	1.65	1.7	1.38	.90	1.49	1.75	1.43
18	2.05	1.7	4.0	2.35	4.2	2.25	1.30	1.30	.90	1.41	1.7	1.45
19	2.25	1.95	3.3	2.3	3.6	1.85	3.2	1.25	1.26	1.33	1.65	1.65
20	2.8	2.1	3.0	2.2	3.2	1.75	2.15	1.28	1.38	1.41	1.65	2.0
21	2.5	2.25	2.9	2.15	2.9	1.7	1.85	1.30	1.49	1.40	1.65	1.75
22	2.4	5.5	2.8	2.1	2.7	1.6	1.7	1.25	1.5	1.41	1.65	1.55
23	2.4	3.6	2.6	2.15	2.6	1.65	1.55	1.19	1.7	1.43	1.6	1.5
24	2.3	2.7	2.8	2.1	2.4	1.5	1.34	1.10	6.2	2.45	1.55	1.46
25	2.4	2.6	3.4	1.95	2.4	1.55	1.55	1.05	9.8	2.0	1.55	1.42

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
26	2.25	2.8	3.0	1.9	2.25	2.0	1.9	1.00	5.7	1.7	1.55	1.43
27	2.0	6.8	2.7	1.9	2.15	2.25	1.75	1.08	3.4	1.6	1.5	1.75
28	2.05	4.1	2.6	1.9	2.1	2.8	1.40	1.04	3.1	1.49	1.55	2.8
29	2.1	3.2	6.9	1.95	2.05	2.4	1.30	1.09	2.8	1.44	1.47	2.35
30	2.25	....	5.9	1.9	2.05	1.95	1.43	1.10	2.45	1.45	1.47	2.35
31	2.4	....	4.3	....	2.15	....	1.48	1.07	....	1.43	....	5.5
1913												
1	3.7	2.25	1.85	2.6	2.15	3.2	1.75	1.08	0.61	0.68	....	1.5
2	2.9	2.15	1.75	2.4	2.1	2.8	1.6	1.20	.59	1.8	....	1.47
3	3.1	2.05	1.65	2.3	2.05	2.5	3.4	1.02	.64	1.13	....	1.44
4	4.0	3.0	1.6	2.25	2.0	4.5	2.1	.98	.61	.99	1.16	1.44
5	3.2	2.8	1.6	2.35	2.7	4.1	1.65	.99	.58	.93	1.15	1.40
6	2.7	2.5	1.6	2.2	2.1	3.0	1.6	.93	.58	.84	1.11	1.36
7	2.5	2.35	1.55	2.05	1.95	2.8	1.9	.92	.64	.78	1.04	1.39
8	2.5	2.15	1.48	2.0	1.9	2.7	1.65	.84	.64	.73	1.06	1.34
9	2.45	2.1	1.5	2.0	1.85	2.6	1.5	.88	.51	.70	1.16	1.42
10	2.3	2.05	1.55	1.95	1.9	2.4	1.55	.94	.57	.76	3.9	1.34
11	2.2	2.0	1.85	1.9	1.75	2.15	2.3	.91	.51	.81	2.5	1.31
12	2.15	2.0	2.15	7.3	1.65	2.05	2.25	.98	.48	1.01	2.05	1.26
13	2.15	1.95	2.15	9.8	1.75	2.0	1.8	1.12	.70	1.01	1.8	1.22
14	2.0	1.8	6.2	6.5	1.7	1.9	1.7	1.19	.58	.92	1.7	1.24
15	1.95	1.75	7.4	4.6	1.75	1.8	1.5	1.19	.60	.87	1.6	1.24
16	1.9	1.75	5.1	4.5	1.8	1.75	1.41	1.08	.62	.79	1.65	1.24
17	1.9	1.8	4.1	4.9	2.0	1.7	1.36	1.02	.58	.74	1.85	1.26
18	1.9	1.8	3.3	4.0	1.9	1.65	1.39	.94	.64	.76	1.9	1.24
19	1.9	1.75	3.0	3.5	1.85	1.6	1.46	.88	.66	.83	1.7	1.14
20	1.85	1.7	2.9	3.2	1.75	1.55	1.42	.90	.64	.88	1.55	1.20
21	1.8	1.75	2.8	2.9	1.75	1.55	1.34	1.19	.84	1.34	1.55	1.20
22	1.75	1.75	2.8	2.8	1.65	1.55	1.55	1.13	1.65	1.6	1.5	1.18
23	1.75	1.75	2.7	2.7	2.15	1.5	1.30	.97	1.7	1.27	1.44	1.18
24	1.9	1.7	2.4	2.6	9.3	1.7	1.21	.98	1.13	1.18	1.38	1.9
25	2.3	1.65	2.35	2.5	5.0	2.15	1.17	.88	.92	2.3	1.31	2.1
26	2.6	1.6	2.3	2.45	3.2	3.0	1.22	.84	.82	2.7	1.25	4.4
27	2.25	1.65	3.2	2.4	2.7	2.8	1.18	.80	.73	2.2	1.34	3.5
28	3.7	1.75	4.1	2.4	4.2	2.9	1.13	.73	.71	1.8	1.35	2.8
29	2.9	....	3.5	2.4	3.8	2.15	1.08	.70	.70	1.55	1.5	2.2
30	2.5	....	3.0	2.25	3.25	1.9	1.09	.70	.64	1.42	1.6	2.1
31	2.35	....	2.8	....	3.6	....	1.11	.66	....	1.20	....	2.0
1914												
1	1.9	4.8	2.5	2.25	2.6	1.18	1.09	0.66	0.93	0.47	0.81	1.06
2	1.75	3.4	2.15	2.3	2.4	1.15	1.09	.63	.81	.48	.79	1.09
3	2.4	2.9	2.2	2.2	2.3	1.12	1.10	.59	.64	.48	.78	1.19
4	8.6	2.7	2.25	2.1	2.2	1.09	1.02	.52	.95	.46	.78	1.18
5	6.1	2.5	2.35	2.0	2.25	1.34	2.05	.55	1.20	.44	.77	1.17
6	4.0	2.5	2.4	1.95	2.65	1.39	1.75	.56	.84	.40	.77	1.8
7	3.2	3.3	2.5	1.95	2.3	1.18	1.55	.54	.60	.45	.76	2.8
8	2.9	3.4	2.8	1.9	2.1	1.13	1.5	.48	.51	.50	.73	3.1
9	2.7	2.7	3.3	2.25	2.2	1.08	1.30	.47	.54	.52	.79	2.6
10	2.5	2.45	3.2	2.1	2.0	1.06	1.09	.46	.47	.52	.83	2.2
11	2.35	2.4	3.1	1.95	1.95	1.04	1.18	1.22	.46	.52	.85	2.3
12	2.15	2.35	2.8	1.85	1.85	1.04	1.04	.59	.53	.52	.78	2.2
13	2.0	2.3	2.5	1.8	1.8	.97	.86	.49	.52	.49	.77	2.2
14	1.7	2.35	2.9	1.75	1.95	.91	2.3	.43	.46	.50	.76	2.8
15	1.8	2.35	3.4	1.95	2.0	1.10	2.05	.52	.70	.51	1.09	2.5
16	1.85	2.35	3.3	4.0	1.8	1.26	1.42	.48	.64	1.75	4.6	2.0
17	1.9	2.3	3.1	3.1	1.65	1.10	1.19	.40	.61	3.3	2.7	1.6
18	1.85	2.25	3.4	2.7	1.65	1.09	1.32	.34	.54	1.95	1.95	1.65
19	1.8	2.15	3.6	2.4	1.6	.99	1.12	.37	.51	1.5	1.7	1.65
20	1.75	2.25	3.0	2.4	1.6	.88	1.03	.37	.48	1.28	1.5	1.9

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
21	1.7	2.8	2.9	3.2	1.5	.91	.88	.31	.48	1.14	1.40	2.25
22	1.75	2.6	2.8	2.9	1.49	.98	.82	.96	.42	1.04	1.36	3.2
23	1.65	2.4	2.9	2.35	1.47	1.04	.70	1.29	.42	.98	1.29	2.45
24	1.7	2.3	2.8	2.2	1.44	1.29	.64	.84	.47	.94	1.27	2.1
25	3.4	2.15	2.6	2.15	1.38	1.12	.59	.85	.54	.95	1.12	1.95
26	3.1	2.15	2.45	6.0	1.31	2.5	1.27	1.65	.81	.93	1.11	1.85
27	2.45	2.3	2.3	5.0	1.31	1.5	1.14	2.05	.84	.91	1.11	1.65
28	2.2	2.4	2.25	3.7	1.28	1.8	.92	1.40	.66	.88	1.08	1.65
29	2.15	....	2.35	3.1	1.25	1.8	.82	1.18	.54	.83	1.08	1.9
30	2.05	....	2.25	2.9	1.24	1.40	.70	1.23	.54	.79	1.08	2.45
31	2.05	....	2.3	....	1.24	....	.73	1.20	....	.79	....	3.0

NOTE.—Gage out Feb. 14-19, 1908; Nov. 2-7, 1909; and Nov. 1-3, 1913. Ice usually forms near the gage, but the effect on discharge relation is probably negligible. All gage readings are probably to water surface.

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914.

Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.
1907					1907					1907				
1	......	1,350	510	1,520	11	......	729	1,780	9,030	21	486	510	1,690	1,960
2	......	1,140	510	1,520	12	......	729	1,310	5,100	22	486	534	1,660	1,810
3	......	985	3,540	1,380	13	......	697	1,050	3,190	23	1,690	510	1,740	5,050
4	......	961	2,120	1,240	14	......	645	961	3,480	24	24,900	510	9,760	10,700
5	......	925	1,080	1,240	15	......	645	865	7,130	25	3,580	510	9,210	4,640
6	......	925	925	1,050	16	......	598	808	4,250	26	2,380	486	4,040	3,380
7	......	773	1,140	1,050	17	......	598	808	3,290	27	1,780	470	2,910	3,000
8	......	808	1,440	1,050	18	......	598	842	2,850	28	1,520	550	2,320	3,000
9	......	865	1,010	1,050	19	486	598	1,890	2,640	29	2,040	842	2,000	2,430
10	......	773	1,080	2,960	20	470	550	1,930	2,210	30	1,930	666	1,810	2,640
										31	......	550	......	3,350

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	3,100	1,520	3,380	2,460	598	3,690	1,520	1,590	1,110	1,690	2,210	750
2	2,090	1,660	3,580	2,210	510	2,720	1,810	1,180	1,010	1,590	1,740	808
3	1,930	1,520	3,100	2,120	925	1,890	2,120	1,010	865	1,380	1,520	645
4	1,840	1,520	2,820	1,740	808	2,640	2,040	865	808	1,240	1,660	750
5	1,810	2,290	2,460	1,630	808	4,980	2,040	750	750	1,110	1,520	750
6	1,740	3,000	5,630	1,660	925	2,380	1,890	645	16,300	889	1,240	687
7	2,290	1,810	5,910	1,520	2,210	1,890	1,740	550	3,380	985	1,240	1,140
8	14,100	2,910	4,210	1,520	3,750	1,740	1,520	550	1,810	865	1,110	961
9	4,830	2,460	3,190	1,440	3,690	1,590	889	697	1,380	773	985	750
10	2,380	2,290	3,290	1,660	1,590	1,310	697	666	1,240	925	1,050	808
11	4,760	2,290	3,580	1,690	1,520	1,810	598	750	985	1,080	985	865
12	23,100	2,780	2,720	1,380	1,440	1,740	550	598	985	2,290	961	3,100
13	21,600	3,750	2,640	1,540	1,310	1,440	510	550	773	1,440	1,180	2,500
14	7,440	12,000	2,320	1,240	1,210	1,310	432	550	666	1,180	1,110	1,380
15	4,870	20,000	1,960	1,310	1,080	1,180	395	470	697	1,110	1,050	1,080

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
16	4,040	13,000	2,090	1,240	1,050	4,760	362	455	550	925	1,380	1,080
17	3,480	7,000	1,960	1,050	985	3,900	329	395	598	865	1,520	1,050
18	3,000	4,000	2,120	1,180	925	2,550	270	2,640	550	865	1,240	865
19	2,640	8,000	2,120	1,310	925	2,550	395	1,810	550	808	1,240	985
20	2,460	4,980	1,960	1,380	4,640	2,210	395	865	510	865	1,180	925
21	1,380	4,540	1,660	1,240	7,220	1,810	329	708	550	808	985	750
22	2,210	3,100	1,660	1,110	22,100	1,440	270	510	697	750	1,050	808
23	2,120	3,000	1,890	1,110	7,540	1,310	865	550	750	666	985	808
24	1,960	2,670	2,040	865	3,900	1,590	1,660	598	750	645	808	645
25	1,960	2,290	2,000	865	3,380	1,110	1,520	510	697	4,420	865	1,050
26	1,590	4,870	1,810	865	3,000	1,050	2,550	22,100	645	2,550	808	1,180
27	2,160	11,300	1,540	729	2,640	985	3,100	9,030	598	2,210	750	1,110
28	2,320	5,100	1,590	645	2,210	865	3,100	6,190	645	1,740	865	1,310
29	1,690	3,900	1,660	550	2,040	750	2,210	1,810	8,010	1,930	773	1,590
30	1,660	....	1,740	550	1,960	598	1,660	1,520	2,720	5,630	698	1,690
31	1,660	....	1,890	....	2,910	....	1,520	1,380	....	2,720	....	3,540
1909												
1	4,210	2,040	2,500	1,570	1,620	1,080	1,660	395	410	187	212	270
2	2,550	1,930	2,210	1,520	1,720	985	1,180	569	317	183	214	294
3	2,160	1,690	2,120	1,470	1,520	1,180	865	865	245	179	216	250
4	2,430	1,540	6,250	1,400	1,400	4,690	750	486	230	172	218	240
5	2,910	1,590	3,420	1,400	1,270	9,940	698	410	230	168	219	250
6	10,700	1,520	2,600	1,270	1,160	8,180	645	486	230	162	221	250
7	4,100	1,440	3,000	1,240	1,160	3,790	729	486	200	179	223	250
8	2,910	1,520	3,900	1,200	1,140	6,920	698	432	187	179	225	276
9	2,460	1,590	2,960	1,140	1,070	5,360	645	395	195	179	230	294
10	2,290	8,610	3,000	1,140	1,110	5,100	550	362	216	179	245	270
11	2,210	7,850	2,600	1,070	1,110	5,580	534	329	329	172	270	270
12	1,930	3,790	2,160	1,070	1,240	3,900	534	230	718	172	294	270
13	1,740	2,820	2,140	1,110	1,110	2,640	534	220	569	1,080	282	410
14	1,840	2,500	2,780	13,600	1,010	14,300	470	187	329	510	294	4,080
15	2,040	2,380	2,430	12,000	949	10,300	534	230	270	355	270	1,900
16	2,600	2,210	1,930	4,580	889	3,830	808	342	235	282	270	1,080
17	2,500	2,210	1,780	3,460	830	2,910	626	808	410	282	294	550
18	2,320	2,000	1,740	2,940	773	4,040	550	1,310	854	260	282	598
19	2,210	1,840	1,740	2,670	710	2,720	510	808	534	230	282	518
20	2,000	4,470	1,660	2,430	670	2,210	470	486	425	212	270	410
21	2,160	3,380	1,590	2,360	1,110	1,690	410	486	355	220	240	342
22	3,480	2,850	1,590	2,640	7,820	1,540	362	1,050	294	216	230	418
23	3,900	2,910	1,520	2,760	3,830	1,400	329	432	255	212	260	440
24	7,320	6,050	1,440	3,330	2,710	1,380	270	329	342	230	323	342
25	6,620	5,690	1,490	2,850	2,190	1,240	382	300	676	220	369	369
26	4,000	3,480	2,260	2,120	1,810	1,110	329	282	355	230	369	375
27	2,820	3,150	1,660	1,920	1,840	1,240	270	245	329	230	311	410
28	2,290	2,820	1,890	1,810	2,290	1,210	270	220	305	220	288	440
29	2,090	....	3,290	1,720	1,920	2,600	220	432	250	212	276	355
30	2,600	....	2,260	1,620	1,470	2,500	245	569	195	216	282	375
31	2,320	....	1,780	....	1,200	....	342	666	....	212	....	418
1910												
1	440	1,060	6,130	718	1,570	645	1,020	526	311	144	382	578
2	410	961	4,760	698	1,520	607	854	494	375	151	382	448
3	455	1,080	3,290	865	1,400	607	708	901	718	135	402	395
4	913	1,680	2,740	1,180	1,160	626	13,700	740	676	115	455	317
5	1,430	2,260	2,260	1,320	1,110	718	8,510	526	502	110	440	317
6	708	2,060	2,010	1,060	1,070	1,390	2,820	478	432	110	382	342
7	1,280	1,110	1,860	973	913	1,280	1,740	425	369	151	369	349
8	3,580	1,190	1,620	901	973	819	1,440	901	311	560	369	455
9	4,400	1,320	1,470	773	1,040	729	1,440	598	282	1,600	349	502
10	3,130	1,110	1,330	676	889	1,960	1,290	494	235	1,290	342	448

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
11	2,090	1,040	1,390	634	865	4,470	1,590	418	220	666	323	440
12	2,160	784	1,560	634	877	10,700	2,440	526	212	410	329	432
13	1,930	729	1,620	656	1,430	11,000	5,770	478	204	336	329	410
14	1,760	889	1,390	750	1,430	6,420	4,190	425	355	305	329	432
15	1,620	1,010	1,250	708	1,080	4,340	2,210	410	560	282	329	455
16	1,810	1,280	1,120	656	913	3,350	1,560	478	369	255	342	470
17	1,210	2,870	1,070	3,750	865	9,760	1,590	448	255	230	349	569
18	1,080	13,100	1,050	6,510	842	4,870	2,910	418	230	220	329	455
19	1,810	4,760	973	4,020	773	3,670	5,880	402	208	220	323	486
20	1,840	3,170	937	2,910	729	3,290	3,150	388	191	208	317	569
21	1,540	2,460	901	2,240	961	3,270	1,800	375	187	1,350	317	518
22	10,300	3,830	877	1,920	925	2,000	1,430	462	187	1,040	329	455
23	4,320	3,380	830	1,620	1,660	1,870	1,160	478	191	3,270	329	440
24	3,000	2,480	830	3,020	1,120	1,570	1,020	462	183	1,600	329	588
25	2,090	2,000	819	2,410	1,110	1,430	877	448	179	949	342	1,870
26	1,930	1,680	808	3,210	1,840	1,190	830	402	168	718	342	1,530
27	1,650	1,470	740	2,460	1,140	1,110	784	448	162	616	342	1,240
28	1,810	1,660	740	2,170	961	1,140	740	432	158	534	369	1,190
29	2,120	....	698	1,860	842	1,690	634	402	151	486	418	1,160
30	1,590	....	740	1,650	666	1,140	616	349	151	448	526	2,530
31	1,270	....	740	....	645	....	569	323	....	402	....	2,430
1911												
1	2,570	2,400	918	1,100	1,220	448	402	113	7,070	311	656	1,160
2	6,480	2,240	860	975	1,160	729	362	118	2,570	305	636	1,040
3	5,100	2,080	860	918	1,100	534	311	106	2,080	305	588	918
4	10,900	1,840	805	918	975	410	245	130	3,290	342	526	860
5	4,610	1,700	805	3,290	918	362	235	1,560	2,000	349	526	805
6	2,740	1,480	805	5,100	860	550	208	2,920	1,100	336	550	750
7	2,240	1,420	805	3,100	860	626	255	1,770	918	323	2,740	750
8	1,770	1,420	918	2,570	805	636	265	860	598	336	2,000	740
9	1,700	2,000	860	2,570	860	687	300	470	494	375	1,420	718
10	1,420	2,240	1,280	2,570	860	534	311	311	1,840	448	1,350	718
11	1,220	1,770	3,100	2,400	805	502	225	276	1,840	369	1,220	676
12	1,160	1,480	2,000	1,920	750	518	240	212	2,240	362	1,100	698
13	1,350	1,420	1,480	1,770	676	607	462	220	1,420	395	1,160	676
14	2,000	1,280	1,770	1,620	607	860	300	220	805	418	1,220	656
15	1,770	1,220	1,840	1,620	588	645	245	542	598	336	1,220	718
16	1,480	1,160	1,700	1,700	588	448	208	462	578	349	1,620	2,080
17	1,220	1,100	1,420	1,560	560	342	195	300	578	369	1,350	5,100
18	1,100	1,100	1,350	1,420	560	329	176	240	560	5,910	1,280	2,240
19	1,040	1,100	1,350	1,350	534	311	151	191	494	4,140	1,700	1,620
20	1,040	1,100	1,560	1,620	510	369	162	176	432	2,000	1,420	1,350
21	1,040	1,840	1,420	1,620	462	342	127	165	636	1,280	1,220	1,350
22	1,040	1,560	1,220	1,420	455	329	151	144	478	1,280	1,040	1,350
23	1,770	1,220	1,100	1,620	432	276	135	130	402	1,700	918	9,030
24	1,700	1,160	1,040	1,920	455	255	135	121	388	1,700	975	6,480
25	1,480	1,100	918	1,620	432	470	127	113	355	1,220	1,350	4,370
26	1,420	1,040	860	1,350	402	1,480	168	110	918	975	1,100	3,100
27	1,920	975	860	1,280	395	975	220	124	676	918	975	3,700
28	1,840	975	1,220	1,160	375	918	395	510	369	805	975	3,100
29	1,700	....	1,160	1,160	355	1,040	276	598	311	718	1,350	2,240
30	2,740	....	1,160	1,160	329	607	225	918	323	666	2,080	1,920
31	3,290	....	1,280	....	329	....	124	3,290	....	666	....	2,080
1912												
1	2,400	1,920	2,920	3,920	1,280	1,350	918	2,240	342	1,560	687	698
2	1,840	1,620	2,570	3,290	1,220	1,220	918	1,480	311	1,420	687	687
3	1,620	1,700	2,080	4,370	1,160	1,160	975	805	502	1,280	676	729
4	1,700	1,620	1,840	3,100	1,040	1,040	805	645	666	1,160	636	750
5	1,620	1,160	1,840	2,400	1,040	1,040	626	534	470	1,040	645	740

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
6	1,040	1,040	1,620	2,240	1,040	975	569	455	395	1,040	636	1,040
7	1,620	1,100	1,620	2,240	1,160	1,700	534	395	440	918	805	1,220
8	1,700	1,100	2,570	2,080	4,610	1,420	510	375	2,920	918	9,390	1,160
9	1,700	1,100	2,920	1,840	4,850	1,160	494	362	1,770	805	3,700	860
10	1,480	975	2,740	1,700	2,240	918	456	1,620	975	750	2,570	805
11	1,350	918	2,240	1,620	1,700	805	402	2,240	518	729	1,770	729
12	1,420	918	2,570	1,560	3,920	750	550	1,620	410	718	1,560	750
13	1,420	918	15,400	1,480	25,700	698	918	1,040	336	687	1,420	729
14	1,620	860	5,630	1,560	10,900	698	805	860	300	687	1,350	645
15	1,620	860	12,000	1,620	4,140	740	6,480	975	294	805	1,280	645
16	1,620	918	19,100	1,560	9,030	676	3,290	750	288	805	1,160	676
17	1,620	975	9,760	1,840	13,300	918	975	626	270	740	1,040	676
18	1,420	975	5,100	1,840	5,630	1,700	550	550	270	656	975	698
19	1,700	1,280	3,490	1,770	4,140	1,160	3,290	510	518	578	918	918
20	2,570	1,480	2,920	1,620	3,290	1,040	1,560	534	626	656	918	1,350
21	2,080	1,700	2,740	1,560	2,740	975	1,160	550	740	645	918	1,040
22	1,920	9,760	2,570	1,480	2,400	860	975	510	750	656	918	805
23	1,920	4,140	2,240	1,560	2,240	918	805	462	975	676	860	750
24	1,770	2,400	2,570	1,480	1,920	750	588	395	12,400	2,000	805	708
25	1,920	2,240	3,700	1,280	1,920	805	805	362	29,800	1,350	805	666
26	1,700	2,570	2,920	1,220	1,700	1,350	1,220	329	10,500	975	805	676
27	1,350	15,000	2,400	1,220	1,560	1,700	1,040	382	3,700	860	750	1,040
28	1,420	5,360	2,240	1,220	1,480	2,570	645	355	3,100	740	805	2,570
29	1,480	3,290	15,400	1,280	1,420	1,920	550	388	2,570	687	718	1,840
30	1,700	....	11,300	1,220	1,420	1,280	676	395	2,000	698	718	1,840
31	1,920	....	5,910	....	1,560	....	729	375	....	676	....	9,760
1913												
1	4,370	1,700	1,160	2,240	1,560	3,290	1,040	382	148	172	462	750
2	2,740	1,560	1,040	1,920	1,480	2,570	860	470	141	1,100	455	718
3	3,100	1,420	918	1,770	1,420	2,080	3,700	342	158	418	448	687
4	5,100	2,920	860	1,700	1,350	6,480	1,480	317	148	323	440	687
5	3,290	2,570	860	1,840	2,400	5,360	918	323	138	288	432	645
6	2,400	2,080	860	1,620	1,480	2,920	860	288	138	240	402	607
7	2,080	1,840	805	1,420	1,280	2,570	1,220	282	158	212	355	636
8	2,080	1,560	729	1,350	1,220	2,400	918	240	158	191	369	588
9	2,000	1,480	750	1,350	1,160	2,240	750	260	118	179	440	666
10	1,770	1,420	805	1,280	1,220	1,920	805	294	135	204	4,850	588
11	1,620	1,350	1,160	1,220	1,040	1,560	1,770	276	118	225	2,080	560
12	1,560	1,350	1,560	17,200	918	1,420	1,700	317	110	336	1,420	518
13	1,560	1,280	1,560	29,800	1,040	1,350	1,100	410	179	336	1,100	486
14	1,350	1,100	12,400	13,700	975	1,220	975	462	138	282	975	502
15	1,280	1,040	17,700	6,770	1,040	1,100	750	462	144	255	860	502
16	1,220	1,040	8,340	6,480	1,100	1,040	656	382	151	216	918	502
17	1,220	1,100	5,360	7,690	1,350	975	607	342	138	195	1,160	518
18	1,220	1,100	3,490	5,100	1,220	918	636	294	158	204	1,220	502
19	1,220	1,040	2,920	3,920	1,160	860	708	260	165	235	975	425
20	1,160	975	2,740	3,290	1,040	805	666	270	158	260	805	470
21	1,100	1,040	2,570	2,740	1,040	805	588	462	240	588	805	470
22	1,040	1,040	2,570	2,570	918	805	805	418	918	860	750	455
23	1,040	1,040	2,400	2,400	1,560	750	550	311	975	526	687	455
24	1,220	975	1,920	2,240	27,200	975	478	317	418	455	626	1,220
25	1,770	918	1,840	2,080	8,010	1,560	448	260	282	1,770	560	1,480
26	2,240	860	1,770	2,000	3,290	2,920	486	240	230	2,400	510	6,190
27	1,700	918	3,290	1,920	2,400	2,570	455	220	191	1,620	588	3,920
28	4,370	1,040	5,360	1,920	5,630	2,740	418	191	183	1,100	598	2,570
29	2,740	....	3,920	1,920	4,610	1,560	382	179	179	805	750	1,620
30	2,080	....	2,920	1,700	3,390	1,220	388	179	158	666	860	1,480
31	1,840	....	2,570	....	4,140	....	402	165	....	470	....	1,350

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
1	1,220	7,380	2,080	1,700	2,240	455	388	165	288	108	225	369
2	1,040	3,700	1,560	1,770	1,920	432	388	154	225	110	216	388
3	1,920	2,740	1,620	1,620	1,770	410	395	141	158	110	212	462
4	23,600	2,400	1,700	1,480	1,620	388	342	121	300	106	212	455
5	12,000	2,080	1,840	1,350	1,700	588	1,420	130	470	101	208	448
6	5,100	2,080	1,920	1,280	2,320	636	1,040	132	240	92	208	1,100
7	3,290	3,490	2,080	1,280	1,770	455	805	127	144	104	204	2,570
8	2,740	3,700	2,570	1,220	1,480	418	750	110	118	115	191	3,100
9	2,400	2,400	3,490	1,700	1,620	382	550	108	127	121	216	2,240
10	2,080	2,000	3,290	1,480	1,350	369	388	106	108	121	235	1,620
11	1,840	1,920	3,100	1,280	1,280	355	455	486	106	121	245	1,770
12	1,560	1,840	2,570	1,160	1,160	355	355	141	124	121	212	1,620
13	1,350	1,770	2,080	1,100	1,100	311	250	113	121	113	208	1,620
14	975	1,840	2,740	1,040	1,280	276	1,770	99	106	115	204	2,570
15	1,100	1,840	3,700	1,280	1,350	395	1,420	121	179	118	388	2,080
16	1,160	1,840	3,490	5,100	1,100	518	666	110	158	1,040	6,770	1,350
17	1,220	1,770	3,100	3,100	918	395	462	92	148	3,490	2,400	860
18	1,160	1,700	3,700	2,400	918	388	569	80	127	1,280	1,280	918
19	1,100	1,560	4,140	1,920	860	323	410	86	118	750	975	918
20	1,040	1,700	2,920	1,920	860	260	349	86	110	534	750	1,220
21	975	2,570	2,740	3,290	750	276	260	74	110	425	645	1,700
22	1,040	2,240	2,570	2,740	740	317	230	305	97	355	607	3,290
23	918	1,920	2,740	1,840	718	355	179	542	97	317	542	2,000
24	975	1,770	2,570	1,620	687	542	158	240	108	294	526	1,480
25	3,700	1,560	2,240	1,560	626	410	141	245	127	300	410	1,280
26	3,100	1,560	2,000	11,600	560	2,080	526	918	225	288	402	1,160
27	2,000	1,770	1,770	8,010	560	750	425	1,420	240	276	402	918
28	1,620	1,920	1,700	4,370	534	1,100	282	645	165	260	382	918
29	1,560	....	1,840	3,100	510	1,100	230	455	127	235	382	1,220
30	1,420	....	1,700	2,740	502	645	179	494	127	216	382	2,000
31	1,420	....	1,770	....	502	....	191	470	....	216	....	2,920

NOTE.—Discharge determined from a rating curve well defined above 500 second-feet and fairly well defined below. No corrections have been made for probable effect of ice. Discharge Feb. 14-19, 1908, estimated by comparison with records of other stations. Discharge interpolated Nov. 2-7, 1909, and Nov. 1-3, 1913.

Monthly discharge of Rappahannock River near Fredericksburg, Va., for 1907–1914.

[Drainage area, 1,590 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
September 19–30	24,900	470	3,480	2.19	0.98	A.
October	1,350	470	711	.447	.52	A.
November	9,760	510	2,090	1.31	1.46	A.
December	10,700	1,050	3,200	2.01	2.32	A.

Monthly discharge of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1908						
January	24,600	1,380	4,430	2.79	3.22	A.
February	20,000	1,520	4,810	3.03	3.27	C.
March	5,910	1,540	2,600	1.64	1.89	A.
April	2,460	550	1,330	.836	.93	A.
May	22,100	510	2,900	1.82	2.10	A.
June	4,980	598	1,990	1.25	1.40	A.
July	3,100	270	1,270	.799	.92	A.
August	22,100	395	2,010	1.26	1.45	A.
September	16,300	510	1,720	1.08	1.20	A.
October	5,630	645	1,510	.950	1.10	A.
November	2,210	698	1,160	.730	.81	A.
December	3,540	645	1,170	.736	.85	A.
The year	24,600	270	2,230	1.40	19.12	
1909						
January	10,700	1,740	3,150	1.98	2.28	A.
February	8,610	1,440	3,070	1.93	2.01	A.
March	6,250	1,440	2,380	1.50	1.73	A.
April	13,600	1,070	2,710	1.70	1.90	A.
May	7,820	670	1,630	1.03	1.19	A.
June	14,300	985	3,850	2.42	2.70	A.
July	1,660	220	562	.353	.41	A.
August	1,310	187	479	.301	.35	B.
September	854	187	350	.220	.25	B.
October	1,080	162	250	.157	.18	B.
November	369	212	266	.167	.19	B.
December	4,080	240	549	.345	.40	A.
The year	14,300	162	1,590	1.00	13.59	
1910						
January	10,300	410	2,120	1.33	1.53	A.
February	13,100	729	2,230	1.40	1.46	A.
March	6,130	698	1,570	.987	1.14	A.
April	6,510	634	1,760	1.11	1.24	A.
May	1,840	645	1,070	.673	.78	A.
June	11,000	607	2,920	1.84	2.05	A.
July	13,700	569	2,430	1.53	1.76	A.
August	901	323	486	.306	.35	B.
September	718	151	291	.183	.20	B.
October	3,270	110	610	.384	.44	A.
November	526	317	360	.226	.25	B.
December	2,530	317	740	.465	.54	A.
The year	13,700	110	1,380	.868	11.76	
1911						
January	10,900	1,040	2,350	1.48	1.71	A.
February	2,400	975	1,480	.931	.97	A.
March	3,100	805	1,250	.786	.91	A.
April	5,100	918	1,810	1.14	1.27	A.
May	1,220	329	652	.410	.47	A.
June	1,480	255	571	.359	.40	A.
July	462	124	237	.149	.17	B.
August	3,290	106	562	.353	.41	A.
September	7,070	311	1,210	.761	.85	A.
October	5,910	305	968	.609	.70	A.
November	2,740	526	1,210	.761	.85	A.
December	9,030	656	2,030	1.28	1.48	A.
The year	10,900	106	1,190	.748	10.19	

Monthly discharge of Rappahannock River near Fredericksburg, Va., for 1907–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1912						
January	2,570	1,040	1,690	1.06	1.22	B.
February	15,000	860	2,410	1.52	1.64	A.
March	19,100	1,620	5,000	3.14	3.62	A.
April	4,370	1,220	1,910	1.20	1.34	A.
May	25,700	1,040	3,930	2.47	2.85	A.
June	2,570	676	1,140	.717	.80	A.
July	6,480	402	1,120	.704	.81	A.
August	2,240	329	746	.469	.54	A.
September	29,800	270	2,640	1.66	1.85	A.
October	2,000	578	900	.566	.65	A.
November	9,390	636	1,360	.855	.95	A.
December	9,760	645	1,230	.774	.89	A.
The year	29,800	270	2,010	1.26	17.16	
1913						
January	5,100	1,040	2,050	1.29	1.49	A.
February	2,920	860	1,350	.849	.88	A.
March	17,700	729	3,130	1.97	2.27	A.
April	29,800	1,220	4,440	2.79	3.11	A.
May	27,200	918	2,830	1.78	2.05	A.
June	6,480	750	1,970	1.24	1.38	A.
July	3,700	382	888	.558	.64	A.
August	470	165	310	.195	.22	B.
September	975	110	222	.140	.16	B.
October	2,400	172	553	.348	.40	A.
November	4,850	355	897	.564	.63	A.
December	6,190	425	1,060	.667	.77	A.
The year	29,800	110	1,640	1.03	14.00	
1914						
January	23,600	918	2,790	1.75	2.02	A.
February	7,380	1,560	2,320	1.46	1.52	A.
March	4,140	1,560	2,490	1.57	1.81	A.
April	11,600	1,040	2,540	1.60	1.78	A.
May	2,320	502	1,140	.717	.83	A.
June	2,080	260	523	.329	.37	A.
July	1,770	141	515	.326	.38	A.
August	1,420	74	275	.173	.20	B.
September	470	97	163	.103	.12	B.
October	3,490	92	386	.243	.28	B.
November	6,770	191	675	.425	.47	A.
December	3,290	369	1,500	.943	1.09	A.
The year	23,600	74	1,270	.799	10.87	

JAMES RIVER BASIN.

JACKSON RIVER AT COVINGTON, VA.

Location.—At the footbridge leading to the West Virginia Pulp and Paper Co.'s mill, just above the Chesapeake & Ohio Railway bridge at Covington. Dunlap Creek enters a few hundred yards below the railroad bridge.

Drainage area.—440 square miles.

Records available.—May 11, 1907, to July 31, 1908.

Gage.—Chain gage on downstream side of footbridge.

Discharge measurements.—Made from the footbridge.

Channel and control.—Right bank low and liable to overflow; left bank high. Bed is composed of gravel and is practically permanent.

Extremes of discharge.—Maximum stage recorded: 6.85 feet, January 12, 1908; discharge not computed. Minimum stage recorded: 0.32 foot, July 21, 1908; discharge, 236 second-feet.

Winter flow.—Ice was present during winter of 1907-8, but did not materially affect the discharge relation.

Accuracy.—Results good for low and medium stages. Rating curve not developed for high stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the United States Forest Service.

Discharge measurements of Jackson River at Covington, Va., in 1907.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
May 11	R. J. Taylor	1.80	924	July 17	R. G. Knight	.61	359
June 26	R. G. Knight	2.60	1,820	July 25	do	.55	285

Daily gage height, in feet, of Jackson River at Covington, Va., for 1907–8.

[James E. Steeley, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1						0.80	1.15	0.58	0.50	0.68	0.40	1.30
2						3.72	1.02	.48	.40	.60	.40	1.22
3						2.45	1.00	.40	.40	.48	2.60	1.12
4						1.95	.92	.35	.60	.50	1.80	1.02
5						1.90	.85	.38	.95	.50	1.45	.90
6						1.80	.80	.42	.72	.45	1.22	.85
7						1.50	.80	.60	.50	.45	1.15	.80
8						2.33	.78	.48	.50	.55	1.02	.75
9						3.52	.72	.48	.50	1.48	.95	.75
10						2.50	.95	.55	.50	1.15	1.10	2.30
11					1.80	2.60	.80	.80	.65	.98	2.35	3.70
12					1.65	3.25	.78	.75	.88	.82	1.88	2.62
13					1.48	4.23	.78	.65	.85	.75	1.55	2.08
14					1.38	6.50	.75	.52	.68	.62	1.40	1.92
15					1.28	4.23	.70	.48	.60	.58	1.22	1.75
16					1.22	3.00	.68	.42	.48	.52	1.15	1.62
17					1.20	2.35	.60	.48	.45	.50	1.00	1.48
18					1.12	2.00	.72	.40	.50	.45	1.00	1.35
19					1.10	1.75	1.02	.38	.50	.45	1.62	1.28
20					1.05	1.65	.90	.30	.50	.45	1.75	1.20
21					.95	1.48	.85	.30	.55	.40	1.62	1.15
22					.88	1.55	.78	.45	.50	.40	1.68	1.15
23					.82	2.30	.62	.45	1.62	.40	1.78	3.30
24					.80	2.02	.60	.92	2.00	.38	3.05	4.85
25					.78	2.73	.58	.80	1.45	.35	2.75	3.30
26					.80	2.45	.50	1.32	1.15	.35	2.28	2.45
27					.82	1.90	.50	1.05	.92	.35	1.95	2.12
28					.80	1.55	.45	.85	.85	.38	1.72	1.98
29					.78	1.38	.48	.72	.75	.40	1.55	1.95
30					.75	1.30	.82	.60	.75	.40	1.32	2.42
31					.75	....	.68	.52	....	.35	....	2.83
1908												
1	2.40	1.15	1.35	4.18	1.80	1.50	.62					
2	2.12	1.05	2.35	3.45	1.75	1.30	.60					
3	1.88	1.00	3.48	2.95	1.70	1.18	.55					
4	1.78	1.20	2.98	2.48	1.58	1.58	.50					
5	1.75	1.12	2.80	2.15	1.50	2.20	.80					
6	1.58	1.10	4.67	1.95	1.48	1.85	.82					
7	1.55	1.15	4.80	1.75	3.18	1.60	1.08					
8	1.60	1.08	4.15	1.62	3.55	1.40	.88					
9	1.52	.90	3.25	1.60	2.68	1.30	.78					
10	1.25	1.10	2.87	1.52	2.40	1.28	.68					
11	1.20	1.05	2.50	1.68	2.62	1.18	.60					
12	6.85	1.30	2.32	1.75	2.22	1.20	.55					
13	4.75	2.52	2.18	1.78	1.95	1.10	.48					
14	3.20	3.55	1.95	1.78	1.75	1.05	.45					
15	2.42	7.00	1.80	....	1.62	1.08	.48					
16	2.18	5.30	1.72	....	1.52	1.10	.40					
17	2.00	3.35	1.75	1.90	1.45	.98	.35					
18	1.85	2.60	2.05	1.85	1.48	.85	.35					
19	1.70	2.32	2.52	1.80	1.50	.78	.35					
20	1.55	2.10	2.60	1.68	1.78	.78	.35					
21	1.50	1.82	2.30	1.55	1.72	.85	.32					
22	1.52	1.75	2.15	1.42	1.92	.72	.40					
23	1.65	1.65	2.02	1.35	2.30	.85	.52					
24	1.60	1.60	2.02	1.30	2.10	.68	.45					
25	1.40	1.48	1.87	1.35	1.92	.65	.68					

Daily gage height, in feet, of Jackson River at Covington, Va., for 1907–8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
26	1.45	1.50	1.70	2.40	1.80	.70	.55	....	....	....	....	....
27	1.82	1.58	1.60	2.00	1.80	.88	1.15	....	....	....	....	....
28	1.65	1.48	1.55	1.75	1.88	.70	1.32	....	....	....	....	....
29	1.58	1.38	1.55	1.60	2.52	.60	.92	....	....	....	....	....
30	1.38	....	1.55	1.50	1.95	.58	.68	....	....	....	....	....
31	1.25	....	3.22	....	1.75	....	.62	....	....	....	....	....

Daily discharge, in second-feet, of Jackson River at Covington, Va., for 1907–8.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1						390	540	314	290	348	260	615
2						....	479	284	260	320	260	575
3						1,610	470	260	260	284	1,800	525
4						1,080	438	245	320	290	955	479
5						1,040	410	254	450	290	708	430
6						955	390	266	362	275	575	410
7						740	390	320	290	275	540	390
8						1,470	383	284	....	305	479	372
9						....	362	284	....	727	450	372
10						1,670	450	305	290	540	515	1,440
11					955	1,800	390	390	338	462	1,490	....
12					845	....	383	372	422	398	1,020	1,820
13					727	....	383	338	410	372	775	1,210
14					663	....	372	296	348	327	675	1,050
15					605	....	355	284	320	314	575	918
16					575	2,360	348	266	284	296	540	824
17					565	1,490	320	284	275	290	470	727
18					525	1,130	362	260	290	275	470	645
19					515	918	479	254	290	275	824	605
20					492	845	430	230	290	275	918	565
21					450	727	410	230	305	260	824	540
22					422	775	383	275	290	260	866	540
23					398	1,440	327	275	824	260	940	....
24					390	1,150	320	438	1,130	254	....	....
25					383	1,970	314	390	708	245	2,000	....
26					390	1,610	290	627	540	245	1,410	1,610
27					398	1,040	290	492	438	245	1,080	1,240
28					390	775	275	410	410	254	895	1,110
29					383	663	284	362	372	260	775	1,080
30					372	615	398	320	372	260	627	1,570
31					372	....	348	296	....	245	....	2,110
1908												
1	1,550	540	645	....	955	740	327	....	....	....	....	....
2	1,240	492	1,490	....	918	615	320	....	....	....	....	....
3	1,020	470	....	2,280	880	555	305	....	....	....	....	....
4	940	565	2,330	1,650	796	796	290	....	....	....	....	....
5	918	525	2,060	1,280	740	1,320	390	....	....	....	....	....
6	796	515	....	1,080	727	995	398	....	....	....	....	....
7	775	540	....	918	....	810	506	....	....	....	....	....
8	810	506	....	824	....	675	422	....	....	....	....	....
9	754	430	....	810	1,900	615	383	....	....	....	....	....
10	590	515	2,170	754	1,550	605	348	....	....	....	....	....

Daily discharge, in second-feet, of Jackson River at Covington, Va., for 1907-8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
11	565	492	1,670	866	1,820	555	320	......	......	......	......	......
12	......	615	1,460	918	1,350	565	305	......	......	......	......	......
13	......	1,700	1,300	940	1,080	515	284	......	......	......	......	......
14	......	......	1,080	940	918	492	275	......	......	......	......	......
15	1,570	......	955	970	824	506	284	......	......	......	......	......
16	1,300	......	895	1,010	754	515	260	......	......	......	......	......
17	1,130	......	918	1,040	708	462	245	......	......	......	......	......
18	995	1,800	1,180	995	727	410	245	......	......	......	......	......
19	880	1,460	1,700	955	740	383	245	......	......	......	......	......
20	775	1,220	1,800	866	940	383	245	......	......	......	......	......
21	740	971	1,440	775	895	410	236	......	......	......	......	......
22	754	918	1,280	688	1,050	362	260	......	......	......	......	......
23	845	845	1,150	645	1,440	410	296	......	......	......	......	......
24	810	810	1,150	615	1,220	348	275	......	......	......	......	......
25	675	727	1,010	645	1,050	338	348	......	......	......	......	......
26	708	740	880	1,550	955	355	305	......	......	......	......	......
27	971	796	810	1,130	955	422	540	......	......	......	......	......
28	845	727	775	918	1,020	355	627	......	......	......	......	......
29	796	663	775	810	1,700	320	438	......	......	......	......	......
30	663	......	775	740	1,080	314	348	......	......	......	......	......
31	590	......	......	......	918	......	327	......	......	......	......	......

NOTE.—Daily discharge for 1907 and 1908 based on a well-defined rating curve. The discharge was greater than 2,500 second-feet for all days, for which record is missing from May 11, 1907, to July 31, 1908.

JAMES RIVER AT BUCHANAN, VA.

Location.—At highway bridge near Chesapeake & Ohio Railway depot at Buchanan.

Drainage area.—2,060 square miles.

Records available.—August 18, 1895, to December 31, 1914.

Gage.—Chain gage on bridge; prior to November 21, 1903, wire gage; datum unchanged since April 3, 1897, when gage was lowered 2 feet to avoid negative readings; gage heights taken previous to that date, as published in "Hydrography of Virginia," Bulletin III, have been reduced to present datum.

Discharge measurements.—Made from bridge.

Channel and control.—Both banks high and clean and not likely to overflow except in extreme floods. Bed composed of rock overlain with mud. Rock control several hundred feet below station, but plotting of discharge measurements indicates that it has not remained permanent.

Extremes of discharge.—Maximum stage: 31.0 feet, crest of flood of March 27-28, 1913, determined by levelling to flood marks; discharge not computed. Minimum stage recorded: 1.2 feet in April and May, 1896; discharge, 260 second-feet; minimum estimates not very accurate.

Winter flow.—Discharge relation seldom seriously affected by ice.

Accuracy.—Well defined and fairly well defined rating curves for low and medium stages have been developed for different years according to the number of discharge measurements made. Above 20,000 second-feet the discharge estimates are more or less approximate.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the United States Weather Bureau, which owns the gage and has furnished gage-height records since 1906.

Discharge measurements of James River at Buchanan, Va., in 1906–1915.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
June 12	H. D. Padgett	2.31	727
1907			
May 9	R. J. Taylor	5.12	5,620
June 24	R. G. Knight	4.44	3,870
July 19	do	2.97	1,570
July 24	do	2.45	972
1909			
July 22	G. C. Stevens	2.26	690
Sept. 10	Stevens and Thomas	2.10	595
1910			
Sept. 6	G. C. Stevens	2.46	859
1911			
July 28	Mathers and Dean	1.88	421
1912			
Nov. 21	Jackson and Batchelder	2.21	560
1914			
Oct. 2	Mathers and Morgan	1.98	334
Oct. 2	do	1.98	336
1915			
June 25	H. J. Dean	2.76	861

Daily gage height, in feet, of James River at Buchanan, Va., for 1906–1914.

[D. D. Booze, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	3.64	4.13	2.45	6.24	3.2	2.7	2.25	2.6	4.3	5.4	3.3	3.2
2	3.42	3.88	2.35	5.42	3.1	2.61	2.21	2.5	3.8	5.0	3.2	3.1
3	3.39	3.56	2.55	4.95	3.14	2.59	2.25	2.5	3.6	4.8	3.1	3.0
4	7.9	3.42	4.21	4.42	2.96	2.4	4.22	2.5	3.3	8.0	3.0	2.9
5	7.08	3.34	5.39	4.35	3.02	2.31	2.96	2.3	3.1	9.1	3.0	2.9
6	5.49	3.2	4.22	4.0	3.45	2.72	2.72	2.3	3.0	7.1	2.9	2.8
7	4.72	3.19	3.91	4.05	3.55	2.64	2.45	3.6	2.9	6.2	2.9	2.8
8	4.18	3.09	3.55	3.84	3.4	2.52	2.3	3.3	2.7	5.4	2.8	2.7
9	3.93	2.9	3.52	3.8	3.36	2.51	2.26	3.3	2.6	4.8	2.8	2.7
10	3.55	2.94	3.28	4.28	3.12	2.34	2.2	3.0	2.5	4.3	2.7	2.6
11	3.39	2.93	3.24	4.92	3.1	2.3	2.19	2.8	2.6	3.9	2.7	2.7
12	3.33	2.7	3.01	4.46	2.94	2.34	2.12	2.7	2.5	3.6	2.8	2.7
13	3.39	2.77	3.01	4.25	2.91	2.3	2.22	2.9	2.8	3.4	2.8	2.7
14	3.55	2.75	2.85	3.9	2.7	2.45	2.31	3.4	3.6	3.2	2.8	2.7
15	3.55	2.65	3.38	4.48	2.78	2.4	2.32	3.6	3.0	3.1	2.7	2.7
16	3.81	2.72	7.0	5.5	2.65	2.4	2.3	4.5	2.8	3.0	2.7	2.7
17	3.86	2.66	5.9	5.01	2.8	2.35	2.3	4.5	2.7	3.0	2.7	2.7
18	3.79	2.49	4.83	4.4	2.9	2.55	2.2	4.2	3.1	3.0	2.7	7.3
19	3.62	2.5	4.59	4.25	2.96	2.5	2.2	4.0	3.0	9.8	2.9	6.6
20	3.41	2.5	4.67	3.92	2.76	4.12	2.2	3.8	3.0	15.6	6.9	5.6
21	3.35	2.4	4.89	3.85	2.78	4.75	2.9	3.8	2.9	10.7	7.4	5.2
22	3.46	2.5	4.63	3.6	2.6	3.96	2.7	3.7	3.0	7.3	5.8	4.8
23	9.41	2.52	4.65	3.59	2.66	3.58	2.6	4.1	3.0	5.7	4.9	4.4
24	9.16	2.45	4.28	3.4	2.49	3.16	2.4	4.3	3.1	5.2	4.4	4.2
25	6.34	2.55	4.23	3.38	2.5	2.92	2.3	4.1	3.1	4.8	4.1	4.0
26	5.4	2.53	3.88	3.12	2.36	2.79	2.3	3.6	2.8	4.4	3.8	3.5
27	4.86	2.43	5.4	3.22	2.68	2.6	2.3	3.3	2.6	4.1	3.5	3.2
28	4.83	2.5	7.88	3.1	2.75	2.6	2.3	3.6	2.7	3.9	3.3	3.6
29	5.0	....	7.14	3.2	2.8	2.59	2.3	4.6	3.9	3.7	3.3	3.5
30	4.6	....	6.16	3.1	2.9	2.51	3.1	4.4	3.4	3.6	3.2	3.5
31	4.37	....	6.46	....	2.94	....	3.1	4.3	....	3.4	....	3.5
1907												
1	5.6	3.2	4.5	4.5	3.7	2.8	3.3	2.3	2.0	2.9	2.2	3.5
2	5.2	3.5	4.7	5.0	3.8	6.8	3.2	2.3	2.0	2.8	2.3	3.3
3	4.8	3.9	6.9	4.6	3.6	7.0	3.1	2.3	2.0	2.7	3.1	3.2
4	4.6	3.7	6.0	4.3	3.6	5.3	3.0	2.3	2.0	2.6	4.3	3.1
5	4.4	3.9	5.2	4.3	3.5	4.7	2.9	2.3	2.4	2.5	3.5	3.0
6	4.2	3.7	4.5	4.3	3.5	4.8	2.8	2.3	3.0	2.5	3.2	2.9
7	4.0	3.4	4.4	8.7	5.6	4.4	2.8	2.3	2.5	2.5	2.8	2.8
8	3.8	3.3	4.4	7.4	5.7	4.1	2.7	2.3	2.4	2.5	2.8	2.8
9	3.8	3.4	4.4	8.8	5.1	6.8	2.7	2.3	2.3	2.5	2.7	2.8
10	3.8	3.4	4.4	8.6	4.9	5.4	2.6	2.4	2.2	2.5	2.8	3.6
11	3.8	4.0	5.5	6.8	4.7	4.8	2.6	2.7	2.5	2.5	2.8	9.3
12	3.7	4.2	5.8	5.8	4.5	5.4	2.8	2.6	4.0	2.5	2.7	6.4
13	3.7	3.9	5.5	5.3	4.3	6.0	2.8	2.5	3.5	2.5	3.6	5.1
14	4.1	3.6	6.7	5.0	4.0	16.4	2.8	2.5	3.0	2.4	3.4	5.0
15	4.4	3.6	6.5	4.7	3.8	10.4	2.6	2.4	2.8	2.3	3.2	4.8
16	5.3	3.6	6.0	4.4	3.7	7.2	2.6	2.3	2.7	2.3	3.0	5.0
17	7.2	3.6	5.2	4.2	3.6	5.8	2.6	2.2	2.5	2.3	2.9	4.8
18	7.4	3.6	4.8	4.2	3.4	5.0	2.6	2.2	2.5	2.3	2.9	4.1
19	7.5	3.5	4.4	4.0	3.3	4.5	2.8	2.2	2.5	2.3	2.9	4.0
20	6.8	3.5	5.2	4.0	3.2	4.3	2.7	2.2	2.4	2.3	4.2	3.9
21	5.8	3.5	5.7	3.9	3.2	4.0	2.7	2.2	2.4	2.3	4.0	3.8
22	4.8	3.5	5.1	3.8	3.1	3.7	2.6	2.2	2.4	2.2	4.0	3.7
23	4.6	3.3	4.6	3.7	3.0	3.9	2.6	2.2	6.1	2.2	4.0	5.0
24	4.2	3.3	4.3	4.5	3.0	4.6	2.5	2.4	8.4	2.2	6.7	11.9
25	4.0	3.3	3.9	5.3	2.9	4.6	2.4	2.7	5.3	2.2	7.7	8.0

Daily gage height, in feet, of James River at Buchanan, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	3.8	3.5	3.8	4.8	2.9	4.5	2.4	3.2	4.3	2.2	6.0	6.2
27	3.6	3.9	3.7	4.5	2.9	4.1	2.4	3.0	3.5	2.2	5.0	5.3
28	3.5	3.9	3.6	4.3	2.9	3.8	2.3	2.6	3.2	2.2	4.5	4.8
29	3.3	....	3.5	4.1	2.9	3.5	2.3	2.4	3.0	2.2	4.0	4.5
30	3.2	....	3.4	3.8	2.9	3.3	2.3	2.3	2.9	2.2	3.8	4.6
31	3.2	....	3.3	....	2.8	......	2.3	2.3	....	2.2	....	6.6
1908												
1	6.0	4.0	4.0	9.5	4.2	4.4	2.6	2.6	2.7	2.2	4.1	2.7
2	5.2	3.7	4.0	9.4	4.2	3.7	2.8	2.5	2.6	2.2	3.7	2.6
3	4.7	3.3	4.6	7.8	4.2	3.5	2.7	2.4	2.5	2.2	3.4	2.6
4	4.3	3.4	5.9	6.6	4.2	3.9	2.7	2.3	2.4	2.1	3.2	2.5
5	4.3	3.5	6.0	5.6	4.1	5.6	3.3	2.3	2.3	2.1	3.0	2.5
6	4.2	3.5	6.7	5.1	4.1	5.5	3.6	2.2	3.7	2.1	2.8	2.5
7	4.2	3.5	8.6	4.7	4.2	4.7	3.7	2.2	3.0	2.1	2.7	2.5
8	5.5	3.6	8.0	4.4	10.3	4.3	3.5	2.2	2.7	2.0	2.7	2.5
9	5.0	3.5	6.8	4.2	7.1	3.9	3.2	2.5	2.6	2.0	2.6	3.4
10	4.4	3.4	6.1	4.1	5.8	3.7	3.0	2.8	2.5	2.1	2.6	3.3
11	4.0	3.4	5.4	4.1	5.7	3.5	2.8	3.2	2.4	2.4	2.5	3.1
12	8.6	3.4	5.0	4.2	5.0	3.6	2.6	3.0	2.3	2.8	2.4	3.5
13	16.7	4.5	4.8	4.2	4.6	3.9	2.5	2.8	2.3	2.6	2.4	4.8
14	9.2	7.5	4.6	4.2	4.3	3.4	2.5	2.5	2.3	2.4	2.3	4.2
15	6.8	11.0	4.4	4.0	4.0	3.3	2.4	2.4	2.2	2.3	2.3	3.8
16	5.9	18.3	4.2	4.0	4.0	3.9	2.4	2.4	2.2	2.2	2.3	3.4
17	5.4	8.7	4.2	4.3	3.8	3.6	2.3	2.4	2.2	2.2	2.2	3.3
18	5.0	6.7	4.6	4.2	3.8	3.3	2.3	2.4	2.2	2.2	2.5	3.2
19	4.6	5.7	5.0	4.2	4.2	3.1	2.3	2.3	2.2	2.1	3.9	3.1
20	4.4	5.3	6.7	4.1	5.2	3.1	2.3	2.3	2.1	2.1	4.0	3.0
21	4.2	4.9	5.7	4.1	5.3	3.0	2.3	2.2	2.1	2.1	4.0	3.0
22	4.2	4.5	5.4	3.9	5.3	3.0	2.3	2.1	2.1	2.1	3.6	3.0
23	4.1	4.2	5.2	3.8	6.0	2.9	2.3	2.3	2.1	2.1	3.4	3.0
24	4.0	4.1	5.2	3.7	6.6	2.8	2.4	2.1	2.1	4.0	3.2	3.0
25	4.0	4.0	5.2	3.7	5.6	2.8	2.3	2.1	2.0	5.5	3.1	3.3
26	4.0	4.0	4.9	3.8	4.9	2.7	2.3	4.4	2.0	4.0	3.0	3.8
27	4.0	4.4	4.7	3.8	4.4	2.8	2.7	4.0	2.0	3.6	2.9	4.5
28	4.1	4.2	4.3	3.8	4.7	2.8	4.3	3.8	2.0	3.8	2.8	4.1
29	4.3	4.1	4.2	3.8	4.4	2.7	3.6	3.4	2.2	4.1	2.8	4.4
30	4.1	....	4.2	3.8	5.4	2.6	3.1	3.0	2.2	6.5	2.7	5.0
31	4.1	....	4.2	....	4.6	....	2.7	2.8	....	4.5	....	6.6
1909												
1	6.8	3.5	4.7	4.3	4.4	4.2	3.8	2.3	2.0	2.0	2.1	2.1
2	5.6	3.5	4.3	4.0	6.1	5.0	3.9	2.4	2.0	2.0	2.1	2.1
3	4.9	3.5	4.0	3.8	5.5	4.7	3.7	2.4	2.0	2.0	2.1	2.1
4	4.4	3.4	4.5	3.7	5.0	4.4	3.2	2.4	2.0	2.0	2.1	2.0
5	4.6	3.3	4.8	3.5	4.6	4.4	2.9	2.3	2.0	2.0	2.1	2.0
6	8.6	3.2	4.4	3.5	4.2	4.8	2.8	2.2	2.0	2.0	2.1	2.0
7	6.6	3.2	4.4	3.4	3.9	4.4	3.3	2.8	2.0	2.0	2.1	2.0
8	6.5	3.2	4.6	3.4	3.9	4.0	3.9	2.6	2.0	2.0	2.1	2.1
9	5.0	3.2	5.2	3.3	3.9	4.5	3.3	2.3	2.0	2.0	2.1	2.1
10	4.6	4.9	5.2	3.2	3.9	4.5	3.0	2.2	2.1	1.9	2.1	2.2
11	4.2	9.1	5.2	3.1	6.7	4.3	2.9	2.2	2.1	1.9	2.1	2.2
12	4.0	6.3	4.8	3.1	5.5	4.2	2.8	2.2	2.1	3.8	2.1	2.2
13	3.8	5.5	4.8	3.0	4.7	3.8	2.7	2.1	2.1	3.8	2.2	2.3
14	3.6	5.0	4.5	10.8	4.4	3.6	2.6	2.1	2.1	2.8	2.2	4.6
15	3.6	4.8	4.3	13.0	4.1	3.4	2.6	2.3	2.1	2.6	2.2	5.0
16	4.3	4.8	4.1	7.0	3.9	3.3	2.6	2.7	2.0	2.4	2.1	4.0
17	6.6	5.3	3.9	6.0	3.7	3.2	2.5	2.6	2.0	2.3	2.1	3.5
18	6.0	5.1	3.8	5.3	3.5	3.5	2.4	2.6	4.8	2.3	2.1	3.1
19	5.5	4.6	3.7	4.8	3.3	3.2	2.4	2.4	4.0	2.3	2.1	2.8
20	5.1	4.8	3.6	4.4	3.7	3.1	2.3	2.3	2.7	2.2	2.1	2.6

Daily gage height, in feet, of James River at Buchanan, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	5.4	4.8	3.6	4.0	3.8	3.0	2.3	2.2	2.3	2.2	2.1	2.4
22	5.2	4.8	3.6	3.8	10.0	2.9	2.2	2.2	2.3	2.1	2.1	2.3
23	5.8	4.9	3.5	4.2	7.5	2.8	2.3	2.2	2.2	2.1	2.1	2.8
24	6.2	5.3	4.0	4.8	6.0	2.8	2.2	2.1	2.2	2.1	2.1	2.8
25	6.1	6.5	4.4	5.3	5.0	2.7	2.2	2.1	2.2	2.2	2.1	2.6
26	5.6	6.0	7.5	4.8	6.7	2.9	2.2	2.0	2.2	2.2	2.1	2.2
27	4.9	5.4	6.0	4.4	8.2	3.0	2.2	2.0	2.1	2.2	2.1	2.3
28	4.5	5.0	5.0	4.0	6.7	2.9	2.2	2.0	2.1	2.2	2.1	2.3
29	4.0	....	5.0	4.0	5.8	2.8	2.2	2.0	2.1	2.2	2.1	2.3
30	3.8	....	4.8	3.9	5.0	2.7	2.3	2.0	2.0	2.2	2.1	2.2
31	3.6	....	4.5	....	4.4	....	2.3	2.0	....	2.2	....	2.2
1910												
1	2.1	3.0	4.9	2.6	3.6	2.6	3.2	2.5	2.0	2.0	2.0	1.9
2	2.3	2.9	7.1	2.6	3.5	2.6	3.0	2.5	2.0	2.0	2.0	1.9
3	2.4	2.9	6.0	2.6	3.3	2.5	2.9	2.5	2.0	1.9	2.0	2.0
4	2.4	3.2	5.3	2.7	3.2	2.5	2.9	2.4	2.7	1.9	2.0	2.0
5	3.1	3.8	4.9	3.1	3.1	2.5	2.9	2.4	3.0	1.9	2.0	2.0
6	3.3	3.6	4.5	3.2	3.3	2.6	3.2	2.3	2.5	1.9	2.0	2.0
7	4.9	3.3	4.3	3.0	2.9	2.9	3.2	2.3	2.3	1.9	1.9	2.0
8	6.2	3.0	4.1	2.9	3.0	3.1	3.1	2.3	2.3	2.0	1.9	2.0
9	4.6	3.2	4.0	2.8	3.1	2.9	3.0	2.3	2.2	2.2	1.9	2.0
10	3.9	3.1	3.8	2.7	3.0	2.8	4.0	2.2	2.2	2.3	1.9	2.0
11	3.7	3.0	3.7	2.7	3.0	4.3	3.4	2.2	2.1	2.2	1.9	2.0
12	3.5	3.0	3.6	2.7	2.9	6.7	3.2	2.2	2.1	2.1	1.9	2.0
13	3.3	2.9	3.4	2.9	2.9	10.8	3.1	2.1	2.1	2.1	1.9	2.0
14	3.3	2.8	3.4	4.3	2.8	15.6	3.0	2.1	2.0	2.0	1.9	1.9
15	3.2	3.0	3.4	3.8	2.8	9.8	3.0	2.1	2.0	2.0	1.9	1.9
16	3.1	3.2	3.3	3.6	2.8	10.5	3.1	2.1	2.0	2.0	1.9	1.9
17	2.9	4.3	3.2	3.8	2.8	14.4	5.0	2.1	2.0	1.9	1.9	1.9
18	2.7	7.8	3.1	4.8	2.8	9.3	5.6	2.1	2.0	1.9	1.9	1.9
19	2.7	7.9	3.1	5.3	2.8	6.8	8.4	2.1	2.0	1.9	1.9	2.0
20	3.9	5.6	3.0	4.9	2.7	6.0	5.8	2.1	1.9	2.0	1.9	2.0
21	3.7	5.3	3.0	4.5	2.7	5.3	4.6	2.1	1.9	2.1	1.9	2.0
22	8.7	4.9	3.0	4.2	2.7	5.1	4.0	2.1	1.9	2.1	1.9	2.0
23	6.4	4.6	2.9	3.9	2.7	4.9	3.7	2.1	1.9	2.3	1.9	2.0
24	5.3	4.4	2.9	3.7	2.7	4.3	3.5	2.1	1.9	2.4	1.9	2.0
25	4.3	4.2	2.8	3.6	2.7	4.2	3.3	2.1	1.9	2.3	1.9	2.2
26	3.8	4.1	2.8	3.6	3.1	4.0	3.1	2.1	1.9	2.2	1.9	2.5
27	3.7	3.9	2.7	3.6	3.0	3.7	3.0	2.1	1.9	2.1	1.9	2.5
28	3.5	3.8	2.7	3.8	2.9	3.5	2.8	2.1	1.9	2.1	1.9	2.7
29	3.3	....	2.7	3.9	2.8	3.5	2.7	2.1	1.9	2.1	1.9	2.9
30	3.1	....	2.7	3.8	2.7	3.4	2.6	2.0	2.0	2.0	1.9	3.4
31	3.0	....	2.6	....	2.6	....	2.5	2.0	....	2.0	....	3.7
1911												
1	4.0	7.5	3.0	5.2	3.6	2.5	2.1	1.8	4.8	2.0	2.6	3.0
2	6.6	5.6	3.0	5.0	3.6	2.5	2.1	1.8	4.4	2.0	2.5	2.9
3	9.0	4.8	3.0	5.0	3.5	2.4	2.1	1.8	3.4	2.1	2.4	2.8
4	11.0	4.0	3.0	5.9	3.4	2.4	2.1	1.8	2.9	2.1	2.4	2.7
5	6.7	3.8	2.9	8.0	3.3	2.5	2.1	1.9	2.7	2.1	2.3	2.7
6	5.7	3.5	2.9	9.6	3.2	2.5	2.1	2.2	2.5	2.1	2.3	2.6
7	4.5	3.3	6.5	8.2	3.2	3.1	2.1	2.2	2.3	2.0	3.9	2.6
8	3.9	4.3	5.1	8.2	3.1	3.2	2.7	2.0	2.3	2.0	3.7	2.6
9	3.6	4.6	4.3	8.0	3.1	3.0	2.7	2.0	2.2	2.0	4.5	2.5
10	3.3	5.2	5.5	7.8	3.0	2.9	2.5	1.9	2.2	2.0	4.0	2.5
11	3.1	5.1	7.0	7.6	3.0	2.8	2.5	1.9	2.4	2.0	3.8	2.5
12	3.0	4.6	6.1	7.6	2.9	2.7	2.5	1.9	2.9	2.3	3.6	2.5
13	3.0	4.2	5.4	7.0	2.8	2.6	2.4	1.9	2.9	2.3	3.5	2.5
14	2.9	4.0	5.1	7.2	2.8	2.5	2.4	1.8	2.6	2.3	3.5	2.4
15	2.9	3.8	5.3	6.9	2.7	2.4	2.4	1.8	2.4	2.3	3.5	2.4

Daily gage height, in feet, of James River at Buchanan, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	2.9	3.6	5.0	6.4	2.7	2.4	2.3	2.4	2.3	2.3	3.4	2.5
17	3.0	3.3	5.0	6.0	2.7	2.3	2.3	2.1	2.4	2.4	3.4	3.1
18	3.3	3.2	5.0	5.5	2.6	2.2	2.2	2.0	2.5	6.5	3.4	3.1
19	3.1	3.1	5.0	4.8	2.6	2.2	2.2	2.0	2.4	7.0	3.3	3.0
20	2.9	3.3	4.9	5.0	2.5	2.2	2.1	1.9	2.3	6.5	3.3	3.0
21	2.8	3.6	4.8	5.6	2.5	2.2	2.1	1.9	2.3	6.0	3.5	3.0
22	2.8	3.2	4.6	5.1	2.4	2.2	2.0	1.9	2.2	5.0	3.3	2.9
23	3.0	3.2	4.2	4.9	2.4	2.2	2.0	1.9	2.2	5.0	3.3	5.0
24	5.4	3.1	4.0	4.5	2.4	2.1	2.0	1.9	2.1	4.4	3.2	6.5
25	4.8	3.1	3.7	4.2	2.4	2.1	2.0	1.8	2.0	3.9	3.2	5.7
26	4.1	3.0	3.7	4.0	2.4	2.1	1.9	1.8	2.0	3.6	3.1	5.5
27	3.5	3.0	4.2	3.9	2.4	2.1	1.9	2.0	2.0	3.3	3.1	5.0
28	3.3	3.0	4.7	3.7	2.5	2.1	1.9	2.0	2.0	3.1	3.1	4.7
29	3.2	....	4.7	3.6	2.5	2.1	1.9	2.1	2.0	2.9	3.1	4.6
30	7.2	....	5.0	3.6	2.5	2.1	1.8	4.0	2.0	2.7	3.1	4.5
31	10.6	....	....	....	2.4	....	1.8	4.9	....	2.6	....	4.6
1912												
1	4.7	5.0	4.8	6.7	3.8	3.0	3.6	2.1	1.9	2.2	2.0	2.0
2	5.0	4.5	4.5	6.7	3.7	2.9	3.8	2.1	1.9	2.1	2.0	2.0
3	4.8	4.2	4.3	8.0	3.6	2.9	3.4	2.1	1.9	2.1	2.0	2.0
4	4.6	4.0	4.0	6.9	3.4	2.8	3.0	2.1	1.8	2.0	2.0	2.0
5	4.2	3.8	3.9	6.2	3.3	2.7	2.9	2.1	1.8	2.0	2.0	2.0
6	3.6	3.7	3.8	5.4	3.5	2.7	3.0	2.0	1.8	2.0	2.0	2.2
7	3.2	3.6	3.7	5.1	4.2	2.6	3.0	2.0	1.8	2.0	2.6	2.4
8	3.0	3.4	3.6	4.8	4.0	2.6	2.9	2.0	1.8	2.0	5.3	2.5
9	3.0	3.3	4.3	4.5	3.8	2.5	2.8	2.0	1.8	1.9	4.5	2.4
10	3.0	3.2	5.2	4.2	3.6	2.5	2.7	2.0	1.8	1.9	3.7	2.3
11	3.4	3.1	4.9	4.0	3.4	2.4	2.7	2.0	1.9	1.9	3.1	2.2
12	3.3	3.0	4.6	3.9	8.4	2.4	2.9	2.0	1.9	1.9	2.9	2.2
13	3.2	2.9	6.9	3.7	10.6	2.4	2.8	2.0	1.9	1.9	2.7	2.2
14	3.1	2.8	7.6	3.6	8.0	2.3	2.7	2.0	1.8	1.9	2.6	2.2
15	3.0	2.8	7.3	3.5	6.0	2.3	2.7	1.9	1.8	2.0	2.5	2.1
16	3.0	2.7	14.4	3.5	7.3	2.3	2.6	1.9	1.8	2.0	2.4	2.1
17	3.0	2.7	9.0	3.4	10.8	2.3	2.6	1.9	1.8	2.0	2.3	2.1
18	2.9	2.7	6.7	3.4	7.6	2.3	2.5	1.9	1.8	2.0	2.3	2.1
19	3.0	2.9	5.8	3.4	6.0	2.3	2.4	1.9	2.1	2.0	2.2	2.1
20	3.3	2.9	5.3	4.0	5.6	2.5	2.4	1.9	2.0	2.0	2.2	2.1
21	3.8	3.3	5.1	3.9	5.2	2.6	2.3	1.9	2.0	2.0	2.2	2.0
22	4.2	8.2	5.3	3.7	4.8	2.5	2.2	1.9	1.9	2.0	2.2	2.0
23	4.0	8.0	5.1	3.7	4.4	2.5	2.2	1.9	2.1	2.0	2.2	2.0
24	3.9	5.6	5.9	3.5	4.1	2.5	2.2	1.9	2.4	2.0	2.2	2.0
25	3.9	5.8	7.0	3.4	3.9	2.5	2.2	1.9	2.9	2.0	2.2	2.0
26	3.9	5.8	7.8	3.4	3.7	2.7	2.2	1.9	3.4	2.0	2.1	2.0
27	3.8	6.8	7.0	3.4	3.5	2.9	2.6	1.9	2.9	2.0	2.1	2.0
28	3.6	7.2	6.0	4.1	3.3	3.6	2.4	1.9	2.6	2.0	2.1	2.0
29	3.5	5.7	9.6	4.0	3.2	3.4	2.2	1.9	2.4	2.0	2.1	2.0
30	4.1	....	16.2	3.9	3.1	3.3	2.2	1.9	2.4	2.0	2.0	2.9
31	5.8	....	8.4	....	3.0	....	2.2	1.9	....	2.0	....	6.1
1913												
1	5.6	3.9	6.5	....	3.7	5.1	3.0	3.0	2.7	2.2	2.9	3.2
2	4.8	3.9	5.7	....	3.6	4.9	3.0	3.0	2.6	2.2	2.9	3.3
3	4.1	3.9	4.2	....	3.5	4.7	3.0	3.0	2.5	2.2	2.9	4.7
4	4.2	4.2	3.9	....	3.4	5.7	6.0	3.0	2.7	2.2	2.8	4.5
5	4.4	5.2	3.7	....	3.3	4.9	4.6	3.0	2.6	2.2	2.8	4.3
6	4.1	4.8	3.5	....	3.3	4.4	4.1	3.0	2.5	2.2	2.8	4.2
7	3.9	4.3	3.4	....	3.2	4.2	3.8	3.0	2.5	2.2	2.7	4.2
8	5.5	3.9	3.3	....	3.4	4.7	3.8	2.9	2.5	2.2	2.7	4.2
9	5.2	3.5	3.2	....	3.6	4.5	3.8	2.9	2.4	2.2	5.2	4.1
10	4.9	3.5	3.1	....	3.6	4.4	5.6	2.9	2.4	2.5	7.8	3.9

Daily gage height, in feet, of James River at Buchanan, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	4.4	3.3	4.0	....	3.4	4.2	4.6	2.9	2.4	2.8	4.8	3.7
12	4.1	3.3	4.8	....	3.3	4.0	4.1	3.7	2.4	2.8	4.8	3.5
13	3.9	3.2	4.4	....	3.2	3.7	3.7	3.8	2.4	2.8	4.7	3.4
14	3.7	3.0	9.1	....	3.2	3.4	3.6	3.7	2.4	2.8	4.7	3.3
15	3.5	2.8	12.0	....	3.2	3.2	3.5	3.6	2.4	2.7	4.6	3.2
16	3.4	2.8	10.5	....	3.1	3.1	3.4	3.5	2.1	2.6	4.7	3.2
17	3.3	2.8	7.6	....	3.4	3.0	3.4	3.5	2.1	2.6	5.7	3.1
18	3.3	2.8	6.5	....	3.5	3.0	3.3	3.5	2.1	2.6	5.6	3.1
19	3.2	2.7	5.6	....	3.5	3.0	3.3	3.4	2.1	2.6	5.0	3.0
20	3.1	2.7	4.8	....	3.5	3.0	3.3	3.4	2.1	2.9	4.5	3.0
21	3.0	2.7	4.5	....	3.5	3.0	3.6	3.4	2.9	3.4	4.1	3.0
22	2.9	2.7	4.3	4.6	3.7	3.0	3.5	3.3	2.7	3.9	3.8	2.9
23	2.9	2.6	4.1	4.4	4.2	3.2	3.4	3.3	2.7	3.7	3.6	2.9
24	2.9	2.6	3.9	4.2	8.0	3.0	3.3	3.2	2.6	3.5	3.4	3.0
25	2.9	2.6	3.8	4.1	7.2	3.0	3.3	3.2	2.5	3.8	3.3	3.2
26	2.8	2.7	3.8	4.0	5.7	3.2	3.2	3.1	2.4	5.3	3.2	3.7
27	2.8	3.3	11.3	3.9	5.1	3.5	3.1	3.1	2.4	4.5	3.2	6.3
28	5.5	7.0	....	3.9	7.7	3.8	3.0	3.0	2.3	4.1	3.2	5.2
29	5.0	....	....	3.9	7.2	3.2	3.0	3.0	2.3	3.7	3.2	4.9
30	4.5	....	....	3.8	6.1	3.0	3.0	2.9	2.3	3.4	3.2	4.6
31	4.1	....	....	....	5.5	....	3.0	2.9	....	3.1	....	4.4
1914												
1	4.3	4.8	4.7	4.7	4.7	2.6	2.5	2.2	2.3	2.1	2.2	5.4
2	4.1	7.5	4.5	4.7	4.6	2.6	2.7	2.2	2.3	2.1	2.2	5.3
3	4.3	6.0	4.3	4.8	4.5	2.6	2.4	2.2	2.2	2.1	2.2	4.7
4	4.5	5.2	4.2	5.0	4.4	2.6	2.2	2.2	2.2	2.1	2.2	4.7
5	4.6	5.0	4.1	4.8	4.3	2.5	2.2	2.2	2.2	2.2	2.2	8.2
6	4.1	5.3	4.0	4.5	4.2	2.5	2.2	2.2	2.2	2.2	2.2	9.0
7	3.9	7.0	3.9	5.4	4.1	2.5	2.2	2.2	2.1	2.1	2.2	8.5
8	3.9	8.5	3.9	5.3	4.0	2.5	2.2	2.2	2.1	2.1	2.2	5.5
9	4.3	6.7	4.0	5.2	3.9	2.5	2.2	2.1	2.1	2.1	2.2	5.0
10	5.9	5.7	4.0	5.1	3.8	2.5	2.7	2.1	2.1	2.1	2.2	4.6
11	5.7	5.3	3.9	5.1	3.7	2.4	2.5	2.1	2.1	2.1	2.2	4.3
12	5.3	5.0	3.9	5.0	3.6	2.4	2.2	2.1	2.1	2.1	2.2	4.1
13	4.7	4.7	4.4	5.0	3.5	2.4	2.2	2.1	2.1	2.1	2.2	4.0
14	4.3	4.5	4.9	4.9	3.4	2.3	3.8	2.1	2.1	2.1	2.2	4.0
15	4.1	4.3	4.9	4.9	3.3	2.3	3.4	2.1	2.1	2.7	2.7	4.5
16	4.0	4.1	4.7	5.5	3.2	2.3	3.1	2.1	2.1	5.0	3.2	4.5
17	3.9	3.8	4.6	5.2	3.1	2.3	2.8	2.1	2.1	4.4	3.1	4.4
18	3.8	3.8	6.7	5.2	3.0	2.2	2.5	2.1	2.1	3.4	2.9	4.3
19	3.7	5.3	6.9	5.1	3.0	2.2	2.4	2.1	2.1	3.0	2.7	4.2
20	3.7	8.9	6.5	5.1	3.0	2.2	2.4	2.1	2.1	2.7	2.7	4.5
21	3.7	8.7	5.7	5.8	2.9	2.2	2.3	2.1	2.1	2.6	2.6	4.7
22	5.3	6.5	5.2	5.1	2.9	2.2	2.3	2.1	2.1	2.5	2.6	4.7
23	4.9	6.3	4.9	4.8	2.9	2.2	2.3	2.1	2.1	2.4	2.5	4.7
24	4.9	6.2	4.9	4.6	2.8	2.2	2.2	2.1	2.1	2.3	2.4	4.7
25	5.3	5.7	4.9	4.4	2.8	2.2	2.2	2.1	2.1	2.3	2.4	4.7
26	6.7	5.2	5.0	4.3	2.8	2.2	2.2	3.0	2.1	2.3	2.3	4.7
27	5.7	5.0	4.9	8.0	2.8	2.2	2.2	2.6	2.1	2.3	2.3	4.9
28	5.2	4.9	4.8	5.9	2.7	2.4	2.2	2.5	2.1	2.3	2.3	4.9
29	4.8	....	4.8	5.5	2.7	2.6	2.2	2.5	2.1	2.3	2.2	4.9
30	4.5	....	4.8	5.0	2.7	2.5	2.2	2.4	2.1	2.3	2.2	5.1
31	4.5	....	4.8	....	2.7	....	2.2	2.4	....	2.2	....	6.6

NOTE.—Discharge relation probably affected by ice Dec. 23-31, 1909. Span of bridge and gage destroyed by flood on night of Mar. 27, 1913. Crest of flood determined by levels Oct. 2, 1914, 31.0 feet. New gage installed Apr. 22, 1913.

Daily discharge, in second-feet, of James River at Buchanan, Va., for 1906–1914.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	2,360	3,270	787	8,070	1,670	1,040	615	935	3,610	6,020	1,820	1,670
2	2,000	2,790	698	6,060	1,530	946	583	835	2,640	5,100	1,670	1,530
3	1,950	2,220	885	5,000	1,590	925	615	835	2,290	4,660	1,530	1,400
4	12,800	2,000	3,430	3,860	1,350	740	3,450	835	1,820	13,100	1,400	1,280
5	10,400	1,880	5,990	3,710	1,430	664	1,350	655	1,530	16,800	1,400	1,280
6	6,230	1,670	3,450	3,020	2,040	1,060	1,060	655	1,400	10,400	1,280	1,160
7	4,490	1,660	2,840	3,110	2,210	977	787	2,290	1,280	7,970	1,280	1,160
8	3,370	1,520	2,210	2,710	1,960	855	655	1,820	1,040	6,020	1,160	1,040
9	2,880	1,280	2,160	2,640	1,900	845	623	1,820	935	4,660	1,160	1,040
10	2,210	1,320	1,790	3,570	1,560	689	575	1,400	835	3,610	1,040	935
11	1,950	1,310	1,730	4,930	1,530	655	568	1,160	935	2,820	1,040	1,040
12	1,860	1,040	1,410	3,940	1,320	689	519	1,040	835	2,290	1,160	1,040
13	1,950	1,120	1,410	3,510	1,290	655	591	1,280	1,160	1,960	1,160	1,040
14	2,210	1,100	1,220	2,820	1,040	787	664	1,960	2,290	1,670	1,160	1,040
15	2,210	988	1,940	3,980	1,130	740	672	2,290	1,400	1,530	1,040	1,040
16	2,660	1,060	10,100	6,250	990	740	655	4,020	1,160	1,400	1,040	1,040
17	2,750	998	7,210	5,130	1,160	697	655	4,020	1,040	1,400	1,040	1,040
18	2,620	825	4,730	3,820	1,280	885	575	3,410	1,530	1,400	1,040	11,000
19	2,320	835	4,210	3,510	1,350	835	575	3,020	1,400	19,500	1,280	9,030
20	1,980	835	4,390	2,860	1,110	3,250	575	2,640	1,400	47,000	9,850	6,480
21	1,890	740	4,860	2,730	1,130	4,560	1,280	2,640	1,280	23,200	11,300	5,560
22	2,060	835	4,300	2,290	935	2,940	1,040	2,460	1,400	11,000	6,960	4,660
23	18,000	855	4,340	2,270	998	2,260	935	3,210	1,400	6,720	4,880	3,820
24	17,100	787	3,570	1,960	825	1,610	740	3,610	1,530	5,560	3,820	3,410
25	8,340	885	3,470	1,940	835	1,300	655	3,210	1,530	4,660	3,210	3,020
26	6,020	865	2,790	1,560	706	1,140	655	2,290	1,160	3,820	2,640	2,120
27	4,800	768	6,020	1,700	1,020	935	655	1,820	935	3,210	2,120	1,670
28	4,730	835	12,800	1,530	1,100	935	655	2,290	1,040	2,820	1,820	2,290
29	5,700	....	10,500	1,670	1,160	925	655	4,240	2,820	2,460	1,820	2,120
30	4,240	....	7,870	1,530	1,280	845	1,530	3,820	1,960	2,290	1,670	2,120
31	3,750	....	8,650	....	1,320	....	1,530	3,610	....	1,960	....	2,120
1907												
1	6,630	1,890	4,200	4,200	2,680	1,340	2,040	825	585	1,470	740	2,340
2	5,700	2,340	4,610	5,260	2,850	9,680	1,890	825	585	1,340	825	2,040
3	4,820	3,030	9,950	4,400	2,500	10,200	1,740	825	585	1,220	1,740	1,890
4	4,400	2,680	7,600	3,800	2,500	5,930	1,600	825	585	1,120	3,800	1,740
5	4,000	3,030	5,700	3,800	2,340	4,610	1,470	825	915	1,010	2,340	1,600
6	3,600	2,680	4,200	3,800	2,340	4,820	1,340	825	1,600	1,010	1,890	1,470
7	3,220	2,180	4,000	15,400	6,630	4,000	1,340	825	1,010	1,010	1,340	1,340
8	2,850	2,040	4,000	11,300	6,870	3,400	1,220	825	915	1,010	1,340	1,340
9	2,850	2,180	4,000	15,800	5,480	9,680	1,220	825	825	1,010	1,220	1,340
10	2,850	2,180	4,000	15,100	5,040	6,160	1,120	915	740	1,010	1,340	2,500
11	2,850	3,220	6,390	9,680	4,610	4,820	1,120	1,220	1,010	1,010	1,340	17,600
12	2,680	3,600	7,110	7,110	4,200	6,160	1,340	1,120	3,220	1,010	1,220	8,620
13	2,680	3,030	6,390	5,930	3,800	7,600	1,340	1,010	2,340	1,010	2,500	5,480
14	3,400	2,500	9,410	5,260	3,220	51,400	1,340	1,010	1,600	915	2,180	5,260
15	4,000	2,500	8,880	4,610	2,850	21,900	1,120	915	1,340	825	1,890	4,820
16	5,930	2,500	7,600	4,000	2,680	10,800	1,120	825	1,220	825	1,600	5,260
17	10,800	2,500	5,700	3,600	2,500	7,110	1,120	740	1,010	825	1,470	4,820
18	11,300	2,500	4,820	3,600	2,180	5,260	1,120	740	1,010	825	1,470	3,400
19	11,600	2,340	4,000	3,220	2,040	4,200	1,340	740	1,010	825	1,470	3,220
20	9,680	2,340	5,700	3,220	1,890	3,800	1,220	740	915	825	3,600	3,030
21	7,110	2,340	6,870	3,030	1,890	3,220	1,220	740	915	825	3,220	2,850
22	4,820	2,340	5,480	2,850	1,740	2,680	1,120	740	915	740	3,220	2,680
23	4,400	2,040	4,400	2,680	1,600	3,030	1,120	740	7,850	740	3,220	5,260
24	3,600	2,040	3,800	4,200	1,600	4,400	1,010	915	14,400	740	9,410	28,400
25	3,220	2,040	3,030	5,930	1,470	4,400	915	1,220	5,930	740	12,200	13,100

Daily discharge, in second-feet, of James River at Buchanan, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	2,850	2,340	2,850	4,820	1,470	4,200	915	1,890	3,800	740	7,600	8,100
27	2,500	3,030	2,680	4,200	1,470	3,400	915	1,600	2,340	740	5,260	5,930
28	2,340	3,030	2,500	3,800	1,470	2,850	825	1,120	1,890	740	4,200	4,820
29	2,040	....	2,340	3,400	1,470	2,340	825	915	1,600	740	3,220	4,200
30	1,890	....	2,180	2,850	1,470	2,040	825	825	1,470	740	2,850	4,400
31	1,890	....	2,040	....	1,340	....	825	825	....	740	....	9,140
1908												
1	7,460	3,040	3,040	18,300	3,430	3,830	1,030	1,030	1,140	660	3,240	1,140
2	5,560	2,500	3,040	18,000	3,430	2,500	1,240	930	1,030	660	2,500	1,030
3	4,450	1,880	4,240	12,500	3,430	2,180	1,140	835	930	660	2,030	1,030
4	3,630	2,030	7,210	9,030	3,430	2,860	1,140	745	835	585	1,740	930
5	3,630	2,180	7,460	6,480	3,240	6,480	1,880	745	745	585	1,480	930
6	3,430	2,180	9,300	5,330	3,240	6,250	2,340	660	2,500	585	1,240	930
7	3,430	2,180	15,100	4,450	3,430	4,450	2,500	660	1,480	585	1,140	930
8	6,250	2,340	13,100	3,820	21,500	3,630	2,180	660	1,140	515	1,140	930
9	5,100	2,180	9,580	3,430	10,400	2,860	1,740	930	1,030	515	1,030	2,030
10	3,830	2,030	7,720	3,240	6,960	2,500	1,480	1,240	930	585	1,030	1,880
11	3,040	2,030	6,020	3,240	6,720	2,180	1,240	1,740	835	835	930	1,610
12	15,100	2,030	5,100	3,430	5,100	2,340	1,030	1,480	745	1,240	835	2,180
13	53,000	4,030	4,660	3,430	4,240	2,860	930	1,240	745	1,030	835	4,660
14	17,200	11,600	4,240	3,430	3,630	2,030	930	930	745	835	745	3,430
15	9,580	24,400	3,830	3,040	3,040	1,880	835	835	660	745	745	2,680
16	7,210	62,000	3,430	3,040	3,040	2,860	835	835	660	660	745	2,030
17	6,020	15,400	3,430	3,630	2,680	2,340	745	835	660	660	660	1,880
18	5,100	9,300	4,240	3,430	2,680	1,880	745	835	660	660	930	1,740
19	4,240	6,720	5,100	3,430	3,430	1,610	745	745	660	660	2,860	1,610
20	3,830	5,780	9,300	3,240	5,560	1,610	745	745	585	585	3,040	1,480
21	3,430	4,880	6,720	3,240	5,780	1,480	745	660	585	585	3,040	1,480
22	3,430	4,030	6,020	2,860	5,780	1,480	745	585	585	585	2,340	1,480
23	3,240	3,430	5,560	2,680	7,460	1,360	745	745	585	585	2,030	1,480
24	3,040	3,240	5,560	2,500	9,030	1,240	835	585	585	3,040	1,740	1,480
25	3,040	3,040	5,560	2,500	6,480	1,240	745	585	515	6,250	1,610	1,880
26	3,040	3,040	4,880	2,680	4,880	1,140	745	3,820	515	3,040	1,480	2,680
27	3,040	3,830	4,450	2,680	3,820	1,240	1,140	3,040	515	2,340	1,360	4,030
28	3,240	3,430	3,630	2,680	4,450	1,240	3,620	2,680	515	2,680	1,240	3,240
29	3,630	3,240	3,430	2,680	3,830	1,140	2,340	2,030	660	3,240	1,240	3,820
30	3,240	....	3,430	2,680	6,020	1,030	1,610	1,480	660	8,760	1,140	5,100
31	3,240	....	3,430	....	4,240	....	1,140	1,240	....	4,030	....	9,030
1909												
1	9,580	2,180	4,450	3,620	3,820	3,430	2,680	745	515	515	585	585
2	6,480	2,180	3,620	3,040	7,720	5,100	2,860	835	515	515	585	585
3	4,880	2,180	3,040	2,680	6,250	4,450	2,500	835	515	515	585	585
4	3,820	2,030	4,030	2,500	5,100	3,820	1,740	835	515	515	585	515
5	4,240	1,880	4,660	2,180	4,240	3,820	1,360	745	515	515	585	515
6	15,100	1,740	3,820	2,180	3,430	4,660	1,240	660	515	515	585	515
7	9,030	1,740	3,820	2,030	2,860	3,820	1,880	1,240	515	515	585	515
8	8,760	1,740	4,240	2,030	2,860	3,040	2,860	1,030	515	515	585	585
9	5,100	1,740	5,560	1,880	2,860	4,030	1,880	745	515	515	585	585
10	4,240	4,880	5,560	1,740	2,860	4,030	1,480	660	585	450	585	660
11	3,430	16,800	5,560	1,610	9,300	3,620	1,360	660	585	450	585	660
12	3,040	8,230	4,660	1,610	6,250	3,430	1,240	660	585	2,680	585	660
13	2,680	6,250	4,660	1,480	4,450	2,680	1,140	585	585	2,680	660	745
14	2,340	5,100	4,030	23,600	3,820	2,340	1,030	585	585	1,240	660	4,240
15	2,340	4,660	3,620	33,600	3,240	2,030	1,030	745	585	1,030	660	5,100
16	3,620	4,660	3,240	10,100	2,860	1,880	1,030	1,140	515	835	585	3,040
17	9,030	5,780	2,860	7,460	2,500	1,740	930	1,030	515	745	585	2,180
18	7,460	5,330	2,680	5,780	2,180	2,180	835	1,030	4,660	745	585	1,610
19	6,250	4,240	2,500	4,660	1,880	1,740	835	835	3,040	745	585	1,240
20	5,330	4,660	2,340	3,820	2,500	1,610	745	745	1,140	660	585	1,030

Daily discharge, in second-feet, of James River at Buchanan, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	6,020	4,660	2,340	3,040	2,680	1,480	745	660	745	660	585	835
22	5,560	4,660	2,340	2,680	20,300	1,360	660	660	745	585	585	745
23	6,960	4,880	2,180	3,430	11,600	1,240	745	660	660	585	585	860
24	7,970	5,780	3,040	4,660	7,460	1,240	660	585	660	585	585	710
25	7,720	8,760	3,820	5,780	5,100	1,140	660	585	660	660	585	550
26	6,480	7,460	11,600	4,660	9,300	1,360	660	515	660	660	585	550
27	4,880	6,020	7,460	3,820	13,800	1,480	660	515	585	660	585	630
28	4,030	5,100	5,100	3,040	9,300	1,360	660	515	585	660	585	640
29	3,040	....	5,100	3,040	6,960	1,240	660	515	585	660	585	520
30	2,680	....	4,660	2,860	5,100	1,140	745	515	515	660	585	530
31	2,340	....	4,030	....	3,820	....	745	515	....	660	....	490
1910												
1	585	1,480	4,880	1,030	2,340	1,030	1,740	930	515	515	515	450
2	745	1,360	10,400	1,030	2,180	1,030	1,480	930	515	515	515	450
3	835	1,360	7,460	1,030	1,880	930	1,360	930	515	450	515	515
4	835	1,740	5,780	1,140	1,740	930	1,360	835	1,140	450	515	515
5	1,610	2,680	4,880	1,610	1,610	930	1,360	835	1,480	450	515	515
6	1,880	2,340	4,030	1,740	1,880	1,030	1,740	745	930	450	515	515
7	4,880	1,880	3,620	1,480	1,360	[illegible]	1,740	745	745	450	450	515
8	7,970	1,480	3,240	1,360	1,480	1,610	1,610	745	745	515	450	515
9	4,240	1,740	3,040	1,240	1,610	1,360	1,480	745	660	660	450	515
10	2,860	1,610	2,680	1,140	1,480	1,240	3,040	660	660	745	450	515
11	2,500	1,480	2,500	1,140	1,480	3,620	2,030	660	585	660	450	515
12	2,180	1,480	2,340	1,140	1,360	9,300	1,740	660	585	585	450	515
13	1,880	1,360	2,030	1,360	1,360	23,000	1,610	585	585	585	450	515
14	1,880	1,240	2,030	3,620	1,240	47,000	1,480	585	515	515	450	450
15	1,740	1,480	2,030	2,680	1,240	19,500	1,480	585	515	515	450	450
16	1,610	1,740	1,880	2,340	1,240	[illegible]	1,610	585	515	515	450	450
17	1,360	3,620	1,740	2,680	1,240	40,700	5,100	585	515	450	450	450
18	1,140	12,500	1,610	4,660	1,240	17,600	6,480	585	515	450	450	450
19	1,140	12,800	1,610	5,780	1,240	9,780	14,400	585	515	450	450	515
20	2,860	6,480	1,480	4,880	1,140	7,460	6,960	585	450	515	450	515
21	2,500	5,780	1,480	4,030	1,140	5,780	4,240	585	450	585	450	515
22	15,400	4,880	1,480	3,430	1,140	5,330	3,040	585	450	585	450	515
23	8,500	4,240	1,360	2,860	1,140	4,880	2,500	585	450	745	450	515
24	5,780	3,820	1,360	2,500	1,140	3,620	2,180	585	450	835	450	515
25	3,620	3,430	1,240	2,340	1,140	3,430	1,880	585	450	745	450	660
26	2,680	3,240	1,240	2,340	1,610	3,040	1,610	585	450	660	450	930
27	2,500	2,860	1,140	2,340	1,480	2,500	1,480	585	450	585	450	930
28	2,180	2,680	1,140	2,680	1,360	2,180	1,240	585	450	585	450	1,140
29	1,880	....	1,140	2,860	1,240	2,180	1,140	585	450	585	450	1,360
30	1,610	....	1,140	2,680	1,140	2,030	1,030	515	515	515	450	2,030
31	1,480	....	1,030	....	1,030	....	930	515	....	515	....	2,500
1911												
1	3,040	11,600	1,480	5,560	2,340	930	585	385	4,660	515	1,030	1,480
2	9,030	6,480	1,480	5,100	2,340	930	585	385	3,820	515	930	1,360
3	16,500	4,660	1,480	5,100	2,180	835	585	385	2,030	585	835	1,240
4	24,400	3,040	1,480	7,210	2,030	835	585	385	1,360	585	835	1,140
5	9,300	2,680	1,360	13,100	1,880	930	585	450	1,140	585	745	1,140
6	6,720	2,180	1,360	18,700	1,740	930	585	660	930	585	745	1,030
7	4,030	1,880	8,760	13,800	1,740	1,610	585	660	745	515	2,860	1,030
8	2,860	3,620	5,330	13,800	1,610	1,740	1,140	515	745	515	2,500	1,030
9	2,340	4,240	3,620	13,100	1,610	1,480	1,140	515	660	515	4,030	930
10	1,880	5,560	6,250	12,500	1,480	1,360	930	450	660	515	3,040	930
11	1,610	5,330	10,100	11,900	1,480	1,240	930	450	835	515	2,680	930
12	1,480	4,240	7,720	11,900	1,360	1,140	930	450	1,360	745	2,340	930
13	1,480	3,430	6,020	10,100	1,240	1,030	835	450	1,360	745	2,180	930
14	1,360	3,040	5,330	10,700	1,240	930	835	385	1,030	745	2,180	835
15	1,360	2,680	5,780	9,850	1,140	835	835	385	835	745	2,180	835

Daily discharge, in second-feet, of James River at Buchanan, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	1,360	2,340	5,100	8,500	1,140	835	745	835	745	745	2,030	930
17	1,480	1,880	5,100	7,460	1,140	745	745	585	835	835	2,030	1,610
18	1,880	1,740	5,100	6,250	1,030	660	660	515	930	8,760	2,030	1,610
19	1,610	1,610	5,100	4,660	1,030	660	660	515	835	10,100	1,880	1,480
20	1,360	1,880	4,880	5,100	930	660	585	450	745	8,760	1,880	1,480
21	1,240	2,340	4,660	6,480	930	660	585	450	745	7,460	2,180	1,480
22	1,240	1,740	4,240	5,330	835	660	515	450	660	5,100	1,880	1,360
23	1,480	1,740	3,430	4,880	835	660	515	450	660	5,100	1,880	5,100
24	6,020	1,610	3,040	4,030	835	585	515	450	585	3,820	1,740	8,760
25	4,660	1,610	2,500	3,430	835	585	515	385	515	2,860	1,740	6,720
26	3,240	1,480	2,500	3,040	835	585	450	385	515	2,340	1,610	6,250
27	2,180	1,480	3,430	2,860	835	585	450	515	515	1,880	1,610	5,100
28	1,880	1,480	4,450	2,500	930	585	450	515	515	1,610	1,610	4,450
29	1,740	....	4,450	2,340	930	585	450	585	515	1,360	1,610	4,240
30	10,700	....	5,100	2,340	930	585	385	3,040	515	1,140	1,610	4,030
31	22,700	....	5,330	....	835	....	385	4,880	....	1,030	....	4,240
1912												
1	4,450	5,100	4,660	9,300	2,680	1,480	2,340	520	385	600	450	450
2	5,100	4,030	4,030	9,300	2,500	1,360	2,680	520	385	520	450	450
3	4,660	3,430	3,620	13,100	2,340	1,360	2,030	520	385	520	450	450
4	4,240	3,040	3,040	9,850	2,030	1,240	1,480	520	325	450	450	450
5	3,430	2,680	2,860	7,970	1,880	1,120	1,360	520	325	450	450	450
6	2,340	2,500	2,680	6,020	2,180	1,120	1,480	450	325	450	450	600
7	1,740	2,340	2,500	5,330	3,430	1,000	1,480	450	325	450	1,000	790
8	1,480	2,030	2,340	4,660	3,040	1,000	1,360	450	325	450	5,780	890
9	1,480	1,880	3,620	4,030	2,680	890	1,240	450	325	385	4,030	790
10	1,480	1,740	5,560	3,430	2,340	890	1,120	450	325	385	2,500	690
11	2,030	1,610	4,880	3,040	2,030	790	1,120	450	385	385	1,610	600
12	1,880	1,480	4,240	2,860	14,400	790	1,360	450	385	385	1,360	600
13	1,740	1,360	9,850	2,500	22,700	790	1,240	450	385	385	1,120	600
14	1,610	1,240	11,900	2,340	13,100	690	1,120	450	325	385	1,000	600
15	1,480	1,240	11,000	2,180	7,460	690	1,120	385	325	450	890	520
16	1,480	1,120	40,700	2,180	11,000	690	1,000	385	325	450	790	520
17	1,480	1,120	16,500	2,030	23,600	690	1,000	385	325	450	690	520
18	1,360	1,120	9,300	2,030	11,900	690	890	385	325	450	690	520
19	1,480	1,360	6,960	2,030	7,460	690	790	385	520	450	600	520
20	1,880	1,360	5,780	3,040	6,480	890	790	385	450	450	600	520
21	2,680	1,880	5,330	2,860	5,560	1,000	690	385	450	450	600	450
22	3,430	13,800	5,780	2,500	4,660	890	600	385	385	450	600	450
23	3,040	13,100	5,330	2,500	3,820	890	600	385	520	450	600	450
24	2,860	6,480	7,210	2,180	3,240	890	600	385	790	450	600	450
25	2,860	6,960	10,100	2,030	2,860	890	600	385	1,360	450	600	450
26	2,860	6,960	12,500	2,030	2,500	1,120	600	385	2,030	450	520	450
27	2,680	9,580	10,100	2,030	2,180	1,360	1,000	385	1,360	450	520	450
28	2,340	10,700	7,460	3,240	1,880	2,340	790	385	1,000	450	520	450
29	2,180	6,720	18,700	3,040	1,740	2,030	600	385	790	450	520	450
30	3,240	....	50,300	2,860	1,610	1,880	660	385	790	450	450	1,360
31	6,960	....	14,400	....	1,480	....	600	385	....	450	....	7,720
1913												
1	6,480	2,820	8,760	....	2,460	5,330	1,400	1,400	1,040	515	1,280	1,670
2	4,660	2,820	6,720	....	2,290	4,880	1,400	1,400	930	515	1,280	1,820
3	3,210	2,820	3,410	....	2,120	4,450	1,400	1,400	820	515	1,280	4,450
4	3,410	3,410	2,820	....	1,960	6,720	7,460	1,400	1,040	515	1,160	4,020
5	3,820	5,560	2,460	....	1,820	4,880	4,240	1,400	930	515	1,160	3,610
6	3,210	4,660	2,120	....	1,820	3,820	3,210	1,400	820	515	1,160	3,410
7	2,820	3,610	1,960	....	1,670	3,410	2,640	1,400	820	515	1,040	3,410
8	6,250	2,820	1,820	....	1,960	4,450	2,640	1,280	820	515	1,040	3,410
9	5,560	2,120	1,670	....	2,290	4,020	2,640	1,280	715	515	5,560	3,210
10	4,880	2,120	1,530	....	2,290	3,820	6,480	1,280	715	820	12,500	2,820

Daily discharge, in second-feet, of James River at Buchanan, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	3,820	1,820	3,020	....	1,960	3,410	4,240	1,280	715	1,160	4,660	2,460
12	3,210	1,820	4,660	....	1,820	3,020	3,210	2,460	715	1,160	4,660	2,120
13	2,820	1,670	3,820	....	1,670	2,460	2,460	2,640	715	1,160	4,450	1,960
14	2,460	1,400	16,800	....	1,670	1,960	2,290	2,460	715	1,160	4,450	1,820
15	2,120	1,160	28,800	....	1,670	1,670	2,120	2,290	715	1,040	4,240	1,670
16	1,960	1,160	22,300	....	1,530	1,530	1,960	2,120	430	930	4,450	1,670
17	1,820	1,160	11,900	....	1,960	1,400	1,960	2,120	430	930	6,720	1,530
18	1,820	1,160	8,760	....	2,120	1,400	1,820	2,120	430	930	6,480	1,530
19	1,670	1,040	6,480	....	2,120	1,400	1,820	1,960	430	930	5,100	1,400
20	1,530	1,040	4,660	....	2,120	1,400	1,820	1,960	430	1,280	4,020	1,400
21	1,400	1,040	4,020	....	2,120	1,400	2,290	1,960	1,280	1,960	3,210	1,400
22	1,280	1,040	3,610	4,240	2,460	1,400	2,120	1,820	1,040	2,820	2,640	1,280
23	1,280	930	3,210	3,820	3,410	1,670	1,960	1,820	1,040	2,460	2,290	1,280
24	1,280	930	2,820	3,410	13,100	1,400	1,820	1,670	930	2,120	1,960	1,400
25	1,280	930	2,640	3,210	10,700	1,400	1,820	1,670	820	2,640	1,820	1,670
26	1,160	1,040	2,640	3,020	6,720	1,670	1,670	1,530	715	5,780	1,670	2,460
27	1,160	1,820	....	2,820	5,330	2,120	1,530	1,530	715	4,020	1,670	8,230
28	6,250	10,100	....	2,820	12,200	2,640	1,400	1,400	610	3,210	1,670	5,560
29	5,100	....	....	2,820	10,700	1,670	1,400	1,400	610	2,460	1,670	4,880
30	4,020	....	....	2,640	7,720	1,400	1,400	1,280	610	1,960	1,670	4,240
31	3,210	....	....	....	6,250	....	1,400	1,280	....	1,530	....	3,820
1914												
1	3,610	4,660	4,450	4,450	4,450	930	820	515	610	430	515	6,020
2	3,210	11,600	4,020	4,450	4,240	930	1,040	515	610	430	515	5,780
3	3,610	7,460	3,610	4,660	4,020	930	715	515	515	430	515	4,450
4	4,020	5,560	3,410	5,100	3,820	930	515	515	515	430	515	4,450
5	4,240	5,100	3,210	4,660	3,610	820	515	515	515	515	515	13,800
6	3,210	5,780	3,020	4,020	3,410	820	515	515	515	515	515	16,500
7	2,820	10,100	2,820	6,020	3,210	820	515	515	430	430	515	14,800
8	2,820	14,800	2,820	5,780	3,020	820	515	515	430	430	515	6,250
9	3,610	9,300	3,020	5,560	2,820	820	515	430	430	430	515	5,100
10	7,210	6,720	3,020	5,330	2,640	820	1,040	430	430	430	515	4,240
11	6,720	5,780	2,820	5,330	2,460	715	820	430	430	430	515	3,610
12	5,780	5,100	2,820	5,100	2,290	715	515	430	430	430	515	3,210
13	4,450	4,450	3,820	5,100	2,120	715	515	430	430	430	515	3,020
14	3,610	4,020	4,880	4,880	1,960	610	2,640	430	430	430	515	3,020
15	3,210	3,610	4,880	4,880	1,820	610	1,960	430	430	1,040	1,040	4,020
16	3,020	3,210	4,450	6,250	1,670	610	1,530	430	430	5,100	1,670	4,020
17	2,820	2,640	4,240	5,560	1,530	610	1,160	430	430	3,820	1,530	3,820
18	2,640	2,640	9,300	5,560	1,400	515	820	430	430	1,960	1,280	3,610
19	2,460	5,780	9,850	5,330	1,400	515	715	430	430	1,400	1,040	3,410
20	2,460	16,100	8,760	5,330	1,400	515	715	430	430	1,040	1,040	4,020
21	2,460	15,400	6,720	6,960	1,280	515	610	430	430	930	930	4,450
22	5,780	8,760	5,560	5,330	1,280	515	610	430	430	820	930	4,450
23	4,880	8,230	4,880	4,660	1,280	515	610	430	430	715	820	4,450
24	4,880	7,970	4,880	4,240	1,160	515	515	430	430	610	715	4,450
25	5,780	6,720	4,880	3,820	1,160	515	515	430	430	610	715	4,450
26	9,300	5,560	5,100	3,620	1,160	515	515	1,400	430	610	610	4,450
27	6,720	5,100	4,880	13,100	1,160	515	515	930	430	610	610	4,880
28	5,560	4,880	4,660	7,210	1,040	715	515	820	430	610	610	4,880
29	4,660	....	4,660	6,250	1,040	930	515	820	430	610	515	4,880
30	4,030	....	4,660	5,100	1,040	820	515	715	430	610	515	5,330
31	4,030	....	4,660	....	1,040	....	515	715	....	515	....	9,030

NOTE.—Discharge determined from several rating curves coincident above about 5,000 second-feet, but differing below that discharge on account of shifting control as indicated by the discharge measurements. Rating curves fairly well defined below and approximate above 20,000 second-feet.

Discharge Dec. 23-31, 1909, when discharge relation was probably affected by ice, estimated at about 28 per cent of that at Cartersville.

Monthly discharge of James River at Buchanan, Va., for 1895–1914.

[Drainage area, 2,060 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1895						
August 25-31	530	475	506	.246	.064	
September	475	380	412	.200	.223	
October	425	425	425	.207	.239	
November	585	475	563	.274	.306	
December 1-28	5,260	530	1,189	.578	.602	
1896						
January 24-31	7,600	1,050	2,874	1.40	.417	
February	10,920	1,050	3,422	1.66	1.79	
March	22,950	1,050	4,712	2.29	2.64	
April	16,650	260	2,332	1.13	1.26	
May	2,065	260	1,035	.503	.580	
June	3,310	710	1,294	.629	.702	
July	30,000	785	2,990	1.42	1.64	
August	2,340	585	1,025	.498	.574	
September	40,160	475	1,826	.887	.990	
October	11,060	530	1,284	.624	.719	
November	17,200	530	2,527	1.23	1.37	
December	8,620	785	1,810	.879	1.01	
1897						
January	1,495	710	886	.431	.497	
February	38,600	1,260	10,560	5.13	5.34	
March	12,830	2,185	4,821	2.34	2.70	
April	3,600	1,150	2,064	1.00	1.12	
May	22,120	1,100	4,730	2.30	2.65	
June	1,750	710	1,018	.495	.552	
July	2,110	710	1,049	.510	.588	
August	955	530	621	.302	.348	
September	585	335	425	.207	.231	
October	502	295	394	.191	.220	
November	530	295	368	.179	.200	
December	1,558	475	1,052	.511	.589	
The year	38,600	295	2,332	1.13	15.04	
1898						
January	4,930	1,002	2,280	1.11	1.28	
February	2,035	865	1,226	.596	.621	
March	14,750	955	2,745	1.33	1.53	
April	10,500	1,620	4,235	2.06	2.30	
May	24,420	1,050	4,264	2.07	2.39	
June	1,495	645	904	.439	.490	
July	2,185	530	804	.391	.451	
August	26,820	785	4,064	1.97	2.27	
September	6,250	325	806	.392	.437	
October	39,120	505	4,163	2.02	2.33	
November	8,230	1,040	2,212	1.07	1.19	
December	6,485	1,155	2,384	1.16	1.34	
The year	39,120	325	2,507	1.22	16.63	

Monthly discharge of James River at Buchanan, Va., for 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1899						
January	21,300	1,530	3,850	1.87	2.16	
February	21,100	1,400	7,291	3.54	3.69	
March	66,290	3,015	10,130	4.92	5.67	
April	6,132	1,965	3,034	1.47	1.64	
May	10,700	1,400	3,295	1.60	1.84	
June	2,640	655	1,181	.574	.640	
July	697	325	434	.211	.243	
August	935	325	402	.195	.225	
September	2,290	325	591	.287	.320	
October	380	275	316	.154	.178	
November	655	325	395	.192	.214	
December	2,207	325	630	.306	.353	
The year	66,290	275	2,629	1.28	17.17	
1900						
January	17,570	440	2,405	1.17	1.35	
February	17,200	655	4,343	2.11	2.20	
March	21,510	1,965	6,014	2.92	3.37	
April	6,132	1,155	2,682	1.30	1.45	
May	4,025	615	1,244	.604	.696	
June	9,850	835	2,260	1.10	1.23	
July	1,815	440	787	.382	.440	
August	740	275	410	.199	.229	
September	1,890	275	614	.298	.333	
October	22,120	505	1,667	.810	.934	
November	57,500	655	4,522	2.20	2.46	
December	17,570	1,155	3,056	1.48	1.71	
The year	57,500	275	2,500	1.21	16.40	
1901						
January	19,700	835	2,860	1.39	1.60	
February	1,890	835	1,307	.635	.661	
March	16,470	835	3,875	1.88	2.17	
April	29,770	2,825	9,179	4.46	4.98	
May	36,600	1,670	6,346	3.08	3.55	
June	27,040	1,965	5,807	2.82	3.15	
July	5,900	935	2,617	1.27	1.46	
August	19,300	835	4,830	2.35	2.71	
September	9,030	740	1,696	.824	.919	
October	1,600	575	789	.383	.442	
November	935	440	550	.267	.298	
December	67,450	575	8,597	4.18	4.82	
The year	67,450	440	4,038	1.96	26.76	
1902						
January	14,420	1,275	3,735	1.81	2.09	
February	45,690	1,530	7,212	3.50	3.64	
March	66,290	2,460	9,685	4.71	5.43	
April	7,210	1,530	3,714	1.80	2.01	
May	1,400	935	1,178	.572	.660	
June	1,530	740	961	.467	.521	
July	1,600	505	683	.332	.383	
August	787	440	548	.266	.307	
September	655	380	425	.207	.231	
October	987	440	615	.299	.345	
November	4,130	440	974	.473	.528	
December	8,362	1,400	3,426	1.66	1.91	
The year	66,290	380	2,762	1.46	18.06	

Monthly discharge of James River at Buchanan, Va., for 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	23,370	1,155	4,488	2.18	2.51	
February	42,760	3,310	7,667	3.73	3.88	
March	44,340	2,640	8,442	4.10	4.73	
April	16,830	2,825	5,520	2.68	2.99	
May	4,130	1,040	1,767	.859	.990	
June	10,410	935	3,322	1.61	1.80	
July	7.210	740	2,019	.981	1.13	
August	2,045	575	958	.466	.537	
September	12,210	575	1,759	.855	.954	
October	2,460	505	715	.347	.400	
November	575	440	498	.242	.270	
December	697	472	570	.277	.319	
The year	44,340	440	3,144	1.53	20.51	
1904						
January	5,785	505	1,186	.576	.664	
February	7,587	749	1,994	.969	1.04	
March	14,390	1,600	3,923	1.91	2.20	
April	13.720	1,074	3,032	1.47	1.64	
May	21,100	1,742	3,904	1.90	2.19	
June	15,900	925	3,232	1.57	1.75	
July	1,670	440	742	.361	.416	
August	1,086	392	627	.305	.352	
September	453	352	391	.190	.212	
October	353	325	336	.163	.188	
November	472	336	382	.186	.208	
December	855	380	473	.230	.265	
The year	21,100	325	1,685	.819	11.12	
1905						
January	5,352	533	1,154	.561	.647	
February	3,132	428	1,012	.492	.512	
March	25,370	2,109	5,488	2.67	3.08	
April	3,857	835	1,619	.787	.878	
May	17,380	723	3,898	1.89	2.18	
June	8,048	599	1,720	.836	.933	
July	42,860	1,167	5,393	2.62	3.02	
August	1,572	607	1,006	.489	.564	
September	2,207	369	671	.326	.364	
October	655	352	475	.231	.266	
November	505	440	444	.216	.241	
December	9,878	472	2,641	1.28	1.48	
The year	42,860	352	2,127	1.03	14.16	
1906						
January	18,000	1,860	4,750	2.31	2.66	A.
February	3,270	740	1,300	.631	.66	A.
March	12,800	698	4,250	2.06	2.38	A.
April	8,070	1,530	3,390	1.65	1.84	A.
May	2,210	706	1,310	.636	.73	A.
June	4,560	655	1,180	.573	.64	A.
July	3,450	519	861	.418	.48	B.
August	4,240	655	2,260	1.10	1.27	A.
September	3,610	835	1,520	.738	.82	A.
October	47,000	1,400	7,320	3.55	4.09	A.
November	11,300	1,040	2,460	1.19	1.33	A.
December	11,000	935	2,550	1.24	1.43	A.
The year	47,000	519	2,760	1.34	18.33	

Monthly discharge of James River at Buchanan, Va., for 1895–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
January	11,600	1,890	4,600	2.23	2.57	A.
February	3,600	1,890	2,520	1.22	1.27	A.
March	9,950	2,040	5,040	2.45	2.82	A.
April	15,800	2,680	5,700	2.77	3.09	A.
May	6,870	1,340	2,780	1.35	1.56	A.
June	51,400	1,340	7,180	3.49	3.89	A.
July	2,040	825	1,220	.592	.68	A.
August	1,890	740	933	.453	.52	A.
September	14,400	585	2,140	1.04	1.16	A.
October	1,470	740	914	.444	.51	A.
November	12,200	740	2,990	1.45	1.62	A.
December	28,400	1,340	5,420	2.63	3.03	A.
The year	51,400	585	3,450	1.68	22.72	
1908						
January	53,000	3,040	6,670	3.24	3.74	B.
February	62,000	1,880	6,830	3.32	3.58	B.
March	15,100	3,040	5,860	2.84	3.27	A.
April	18,200	2,500	4,840	2.35	2.62	A.
May	21,500	2,680	5,300	2.57	2.96	A.
June	6,480	1,030	2,390	1.16	1.29	A.
July	2,620	745	1,290	.626	.72	B.
August	3,820	585	1,160	.563	.65	B.
September	2,500	515	814	.395	.44	B.
October	8,760	515	1,580	.767	.88	B.
November	3,240	660	1,540	.748	.83	B.
December	9,030	930	2,280	1.11	1.28	A.
The year	62,000	515	3,380	1.64	22.26	
1909						
January	15,100	2,340	5,630	2.73	3.15	A.
February	16,800	1,740	4,830	2.34	2.44	A.
March	11,600	2,180	4,210	2.04	2.35	A.
April	33,600	1,480	5,150	2.50	2.79	B.
May	20,300	1,880	5,690	2.76	3.18	B.
June	5,100	1,140	2,550	1.24	1.38	A.
July	2,860	660	1,230	.597	.69	A.
August	1,240	515	729	.354	.41	A.
September	4,660	515	814	.395	.44	A.
October	2,680	450	772	.375	.43	B.
November	660	585	592	.287	.32	A.
December	5,100	....	1,070	.519	.60	B.
The year	33,600	....	2,770	1.34	18.18	
1910						
January	15,400	585	3,000	1.46	1.68	A.
February	12,800	1,240	3,310	1.61	1.68	A.
March	10,400	1,030	2,680	1.30	1.50	A.
April	5,780	1,030	2,370	1.15	1.28	A.
May	2,340	1,030	1,420	.689	.79	A.
June	47,000	930	8,240	4.00	4.46	B.
July	14,400	930	2,620	1.27	1.46	A.
August	930	515	658	.319	.37	A.
September	1,480	450	592	.287	.32	A.
October	835	450	561	.272	.31	A.
November	515	450	463	.225	.25	A.
December	2,500	450	692	.336	.39	A.
The year	47,000	450	2,206	1.07	14.49	

Monthly discharge of James River at Buchanan, Va., for 1895-1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1911						
January	24,400	1,240	4,910	2.38	2.74	A.
February	11,600	1,480	3,130	1.52	1.58	A.
March	10,100	1,360	4,390	2.13	2.46	A.
April	18,700	2,340	7,720	3.75	4.18	A.
May	2,340	835	1,300	.631	.73	A.
June	1,740	585	880	.427	.48	A.
July	1,140	385	654	.317	.37	A.
August	4,880	385	707	.343	.40	A.
September	4,660	515	1,070	.519	.58	A.
October	10,100	515	2,320	1.13	1.30	A.
November	4,030	745	1,880	.913	1.02	A.
December	8,760	835	2,410	1.17	1.35	A.
The year	24,400	385	2,610	1.27	17.19	
1912						
January	6,960	1,360	2,640	1.28	1.48	A.
February	13,800	1,120	4,070	1.98	2.14	A.
March	50,300	2,340	9,780	4.75	5.48	B.
April	13,100	2,030	4,080	1.98	2.21	A.
May	23,600	1,480	5,700	2.77	3.19	B.
June	2,340	690	1,070	.519	.58	A.
July	2,680	600	1,110	.539	.62	A.
August	520	385	426	.207	.24	A.
September	2,030	325	555	.269	.30	A.
October	609	385	447	.217	.25	A.
November	5,780	450	1,030	.500	.56	A.
December	7,720	450	795	.368	.44	A.
The year	50,300	325	2,640	1.28	17.49	
1913						
January	6,480	1,160	3,060	1.49	1.72	B.
February	10,100	930	2,290	1.11	1.16	B.
March 1-26	28,800	1,530	6,280	3.05	2.95	B.
April 22-30	4,240	2,640	3,200	1.55	.52	B.
May	13,100	1,530	3,870	1.88	2.17	B.
June	6,720	1,400	2,740	1.33	1.48	B.
July	7,460	1,400	2,450	1.19	1.37	B.
August	2,640	1,280	1,690	.820	.94	B.
September	1,280	430	758	.368	.41	B.
October	5,780	515	1,520	.738	.85	B.
November	12,500	1,040	3,230	1.57	1.75	B.
December	8,230	1,280	2,760	1.34	1.54	B.
1914						
January	9,300	2,460	4,310	2.09	2.41	B.
February	16,100	2,640	7,040	3.42	3.56	B.
March	9,850	2,820	4,670	2.27	2.62	B.
April	13,100	3,620	5,450	2.65	2.96	B.
May	4,450	1,040	2,130	1.03	1.19	B.
June	930	515	695	.337	.38	B.
July	2,640	515	775	.376	.43	B.
August	1,400	430	543	.264	.30	A.
September	610	430	453	.220	.25	A.
October	5,100	430	897	.435	.50	A.
November	1,670	515	726	.352	.39	A.
December	16,500	3,020	5,580	2.71	3.12	B.
The year	16,500	430	2,750	1.33	18.11	

NOTE.—Estimates of discharge for the following periods are subject to considerable error owing to inaccuracy of gage: Jan. 24 to July 9, 1896; Oct. 15 to Dec. 31, 1897; Jan. 1 to Feb. 13, 1898; and Apr. 1 to July 6, 1899.

Discharge relation probably affected by ice during part of January, 1905, but no correction was made in discharge estimates; also probably affected by ice Dec. 23-31, 1909, and discharge for this period was estimated at about 28 per cent of the discharge at the Cartersville station.

JAMES RIVER AT HOLCOMB ROCK, VA.

Location.—At the works of the Virginia Electrolytic Co. at Holcomb Rock, Va.

Drainage area.—Not measured.

Records available.—Gage heights January 1, 1900, to December 31, 1914.

Gage.—Copper float inclosed in a perforated box in the tailrace of the plant; vertical rod, graduated to tenths of feet, is attached to float and extends up through power-house floor; gage read twice daily.

Discharge measurements.—None made.

Channel and control.—No information.

Extremes of stage.—Maximum stage observed; 26.8 feet at 8 a. m., March 28, 1913. Minimum stage recorded: —0.9 foot, September 14, 1913.

Winter flow.—No information.

Coöperation.—Gage-height records furnished by Virginia Electrolytic Co.

Daily gage height, in feet, of James River at Holcomb Rock, Va., for 1906–1914.

[G. L. Price, J. H. Webb, and R. D. Damson, observers.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	3.9	2.9	1.3	5.75	1.75	1.6	1.4	1.5	3.8	3.45	2.25	1.85
2	3.75	2.75	1.3	4.9	1.8	1.7	1.5	1.4	2.65	3.8	2.2	1.8
3	3.0	2.45	1.7	4.05	1.75	1.35	1.05	1.3	2.45	5.85	2.1	1.7
4	2.5	2.0	4.2	3.6	1.7	1.3	2.05	1.3	2.25	9.55	1.95	1.7
5	2.4	2.1	4.8	3.15	1.7	1.3	1.85	1.0	2.05	9.65	1.85	1.65
6	2.55	2.1	3.7	2.95	1.55	1.5	1.55	1.5	1.9	6.6	1.7	1.7
7	3.0	2.0	2.9	2.75	2.25	1.55	1.45	2.0	1.8	5.65	1.7	1.65
8	3.3	1.75	2.55	2.55	2.1	1.35	1.1	2.35	1.7	4.65	1.7	1.6
9	2.95	1.7	2.35	2.6	2.05	1.3	1.15	2.1	1.6	3.85	1.7	1.45
10	2.55	1.7	2.3	3.15	2.0	1.15	1.2	2.05	1.55	3.2	1.65	1.5
11	2.2	1.7	2.0	3.75	1.85	1.25	1.2	1.7	1.5	2.7	1.55	1.6
12	2.1	1.55	2.0	3.4	1.8	1.3	1.2	1.6	1.55	2.45	1.65	1.55
13	2.1	1.6	1.9	3.1	1.55	1.3	1.1	1.7	1.85	2.15	1.7	1.5
14	2.4	1.55	1.85	2.7	1.6	1.4	1.2	2.15	2.25	2.0	1.65	1.4
15	2.4	1.55	2.25	3.3	1.55	1.3	1.1	3.45	1.8	1.95	1.6	1.4
16	2.55	1.5	5.4	4.6	1.5	1.3	1.35	4.2	1.5	1.85	1.6	1.45
17	2.55	1.5	5.15	4.4	1.5	1.1	1.3	4.05	1.35	1.8	1.6	1.6
18	2.5	1.25	3.7	3.65	1.6	1.4	1.2	3.6	1.35	3.4	1.55	4.7
19	2.5	1.5	3.6	3.2	1.65	1.5	1.25	3.0	1.4	13.4	3.95	6.8
20	2.3	1.45	3.85	2.9	1.6	4.75	1.3	3.2	1.4	19.0	9.85	4.35
21	2.0	1.35	3.9	2.65	1.5	4.5	1.1	3.2	1.3	12.3	7.85	3.7
22	2.05	1.4	3.85	2.55	1.4	3.55	1.2	2.9	1.4	8.1	5.3	3.55
23	5.85	1.3	3.4	2.4	1.3	2.65	1.7	2.75	1.6	6.3	4.2	3.35
24	9.85	1.4	3.3	2.25	1.3	2.05	1.4	2.8	1.9	5.45	3.35	2.8
25	6.3	1.1	2.95	2.1	1.3	1.95	1.3	2.9	1.65	4.4	2.85	2.55
26	4.7	1.35	2.9	2.1	1.3	1.7	1.3	2.8	1.55	3.8	2.65	2.35
27	4.0	1.35	3.65	2.0	1.3	2.1	1.3	2.75	1.4	3.4	2.45	2.2
28	3.75	1.3	7.1	2.0	1.5	1.65	1.3	4.75	1.6	3.2	2.25	2.2
29	4.1	....	6.5	1.85	1.6	1.85	1.5	5.9	2.15	2.85	2.05	2.2
30	3.8	....	5.8	1.75	1.8	1.6	2.05	4.6	2.25	2.5	1.85	2.1
31	3.35	....	5.85	....	1.7	....	1.7	3.85	....	2.35	....	3.1
1907												
1	5.75	2.1	3.5	2.85	2.4	3.1	2.2	1.4	1.1	2.0	1.3	2.4
2	5.7	2.1	3.5	4.05	2.4	8.45	2.15	1.5	1.3	1.9	1.35	2.35
3	5.15	2.4	5.85	3.25	2.35	7.15	1.95	1.3	1.25	1.75	1.85	2.25
4	3.65	2.5	5.3	2.85	2.3	4.9	1.75	.95	1.25	1.65	3.05	2.1
5	3.35	2.55	4.1	2.7	2.15	4.05	1.95	1.35	1.35	1.6	2.4	2.0
6	2.95	2.5	3.6	2.95	2.35	3.75	1.75	1.3	1.95	1.35	1.95	1.9
7	2.85	2.15	3.3	7.0	4.1	3.35	1.65	1.3	1.75	1.6	2.0	1.85
8	2.7	2.1	3.15	6.85	4.95	3.05	1.85	1.3	1.05	1.6	1.75	1.5
9	2.6	2.1	3.0	9.95	4.1	5.45	1.7	1.3	1.3	1.5	1.7	1.95
10	2.5	1.9	3.3	10.15	3.95	5.0	1.7	1.4	1.2	1.5	1.65	5.2
11	2.5	2.55	3.7	6.9	3.95	3.9	1.7	1.35	1.4	1.7	2.9	8.9
12	2.5	2.95	4.8	5.55	3.45	4.35	1.7	1.5	2.25	1.65	3.35	6.5
13	2.45	2.6	4.65	4.6	2.9	6.0	1.75	1.5	2.5	1.35	2.55	5.2
14	2.5	2.4	6.2	4.0	2.65	16.15	1.55	1.5	1.85	1.45	2.3	4.35
15	3.1	2.4	5.7	3.6	2.5	11.1	1.65	1.4	1.4	1.4	2.1	4.6
16	3.95	2.4	5.2	3.25	2.65	6.95	1.6	1.35	1.5	1.4	1.95	4.55
17	6.0	2.2	4.1	2.95	2.45	5.15	1.6	1.3	1.35	1.4	1.65	4.1
18	6.55	2.3	3.7	2.8	2.25	4.05	1.6	1.1	1.3	1.4	2.05	3.55
19	0.8	2.25	3.45	2.75	1.9	3.45	1.7	1.2	1.5	1.4	2.85	3.25
20	6.5	2.2	3.8	2.6	1.95	3.2	2.0	1.2	1.3	1.05	3.0	3.05
21	4.85	2.15	4.75	2.55	1.9	2.75	1.75	1.2	1.3	1.4	3.0	2.7
22	4.0	2.1	4.25	2.55	1.8	2.4	1.7	1.45	1.15	1.35	3.15	2.5
23	3.3	2.0	3.55	2.55	1.8	2.85	1.6	1.4	9.65	1.25	3.3	7.05
24	2.85	1.7	3.05	3.35	1.7	3.25	1.4	1.4	10.35	1.2	7.1	11.65
25	2.55	1.85	2.8	4.2	1.75	3.1	1.4	2.2	5.25	1.2	8.2	8.55

Daily gage height, in feet, of James River at Holcomb Rock, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	2.45	2.1	2.6	3.7	1.55	3.25	1.45	1.8	3.35	1.2	5.95	6.1
27	2.3	2.5	2.45	3.35	1.7	3.1	1.4	1.55	2.5	1.0	4.5	4.85
28	2.2	2.7	2.35	2.85	1.55	2.6	1.15	1.55	2.25	1.35	3.7	4.2
29	2.1	....	2.25	2.75	1.55	2.45	1.4	1.4	1.35	1.35	3.15	3.7
30	2.0	....	2.15	2.55	1.5	2.3	1.5	1.4	2.15	1.3	2.85	4.15
31	2.0	....	2.05	....	1.55	....	1.4	1.3	....	1.3	....	5.5
1908												
1	4.9	2.6	3.05	9.0	2.8	3.0	1.7	1.75	1.7	1.6	3.65	1.75
2	4.5	2.7	3.6	9.15	3.2	2.5	1.7	1.4	1.65	1.6	3.1	1.65
3	3.95	2.75	5.3	7.7	2.9	2.2	1.8	1.6	1.6	1.35	2.5	1.7
4	3.5	2.35	6.3	6.05	2.8	2.55	1.7	1.45	1.55	1.3	2.3	1.65
5	3.45	2.45	5.25	4.9	2.8	5.05	2.4	1.4	1.5	1.4	2.15	1.6
6	3.25	2.25	6.9	4.3	2.75	5.2	2.4	1.35	4.0	1.3	2.05	1.65
7	4.85	2.45	8.9	3.8	3.45	3.9	2.55	1.5	2.55	1.3	2.05	1.8
8	5.3	2.4	7.8	3.45	9.4	3.25	2.45	1.5	2.1	1.25	1.75	2.0
9	4.35	2.35	6.55	3.15	6.65	3.0	2.2	1.45	1.9	1.3	1.85	2.3
10	3.65	2.4	5.65	3.0	5.0	2.9	1.95	1.85	1.8	1.4	1.7	2.2
11	3.15	2.4	4.85	2.95	4.45	2.75	1.8	2.15	1.7	1.15	1.75	2.2
12	11.35	2.15	4.3	2.85	3.9	3.15	1.5	1.95	1.6	1.9	1.7	2.45
13	18.25	3.45	3.95	2.95	3.4	3.05	1.8	1.7	1.4	1.6	1.7	3.55
14	10.0	7.8	3.65	2.75	3.05	2.65	1.6	1.7	1.5	1.45	1.7	3.3
15	7.3	13.95	3.4	2.7	2.75	2.7	1.65	1.65	1.45	1.4	1.65	2.75
16	5.8	17.5	3.25	2.7	2.65	3.8	1.45	1.15	1.5	1.4	1.85	2.55
17	5.1	9.25	3.15	2.8	2.5	3.05	1.5	1.55	1.5	1.2	1.7	2.35
18	4.35	6.75	3.4	2.95	2.5	2.75	1.45	1.5	1.5	1.3	1.8	2.2
19	3.95	5.45	4.05	2.8	2.75	2.45	1.3	1.4	1.5	1.0	2.6	2.2
20	3.55	4.9	5.45	2.85	4.1	2.25	1.45	1.4	1.1	1.2	3.2	2.05
21	3.35	4.25	4.9	2.75	5.5	2.05	1.55	1.4	1.6	1.25	3.05	2.0
22	3.15	3.8	4.3	2.6	6.2	2.25	1.5	1.3	1.4	1.05	2.75	2.0
23	3.1	3.45	4.2	2.45	5.85	2.0	1.6	1.35	1.3	1.2	2.55	1.95
24	3.15	3.25	4.25	2.4	6.1	2.0	1.8	1.45	1.25	3.95	2.35	1.6
25	3.05	3.1	4.25	2.35	4.8	2.1	1.85	1.7	1.3	5.75	2.2	2.05
26	2.8	3.3	3.9	2.35	3.75	1.9	1.8	5.4	1.3	3.3	2.1	2.45
27	3.1	3.85	3.5	3.45	3.25	1.9	1.65	4.5	1.15	2.5	1.95	3.25
28	3.8	3.7	3.25	3.0	3.6	1.7	3.05	3.0	1.6	2.2	1.85	3.0
29	3.3	3.25	3.05	2.65	4.2	1.75	2.9	2.4	1.8	3.6	1.75	3.2
30	2.9	....	3.05	2.6	4.35	1.75	2.2	2.0	1.6	6.95	1.9	3.9
31	2.7	....	3.5	....	3.4	....	1.95	1.9	....	5.25	....	6.4
1909												
1	7.0	2.85	3.9	3.3	3.25	4.25	2.55	1.2	1.0	1.0	1.0	1.0
2	5.6	2.5	3.4	3.1	5.1	4.55	3.2	1.65	1.05	.85	1.05	1.0
3	4.2	2.5	3.4	2.9	4.7	3.9	2.55	1.6	.8	.7	1.0	1.0
4	3.7	2.45	3.6	2.7	3.9	4.95	2.2	1.6	.9	.95	1.0	1.0
5	4.65	2.4	4.1	2.8	3.5	4.85	2.0	1.4	.75	.9	.9	.75
6	8.65	2.35	3.5	2.6	3.15	4.3	2.0	1.6	.85	.85	1.0	1.05
7	7.05	2.2	3.35	2.45	2.85	3.65	2.5	1.55	.95	.8	.8	1.0
8	5.35	2.3	3.75	2.35	2.65	3.5	2.75	1.6	1.05	.8	1.1	1.0
9	4.3	2.3	4.2	2.3	2.6	3.5	2.3	1.55	1.35	.75	1.0	1.0
10	3.65	5.45	4.2	2.2	3.0	3.65	2.05	1.45	1.1	.85	1.0	1.0
11	3.25	9.65	4.2	2.05	5.9	3.4	1.8	1.4	1.1	1.05	1.05	1.25
12	3.1	7.0	3.75	2.05	4.7	3.25	1.95	1.25	.95	3.15	1.0	.85
13	2.85	5.0	3.55	2.1	3.75	2.95	1.8	1.1	1.0	2.35	1.0	1.45
14	2.7	4.35	3.4	10.75	3.5	3.1	1.5	1.05	1.0	1.75	.9	5.15
15	2.7	4.05	3.25	12.75	2.95	2.75	1.5	1.3	.95	1.55	1.1	4.75
16	3.25	3.8	3.05	7.5	2.7	2.55	1.5	1.55	1.0	1.35	1.1	3.15
17	5.7	4.0	2.9	5.6	2.7	2.6	1.6	1.65	1.0	1.1	1.0	2.4
18	5.55	4.45	2.75	4.5	2.4	3.1	1.25	1.75	2.8	1.2	1.0	2.2
19	5.0	3.8	2.65	4.05	2.25	2.15	1.65	1.6	1.65	1.15	1.0	1.85
20	4.55	3.9	2.55	3.55	2.15	2.25	1.45	1.5	1.75	1.2	1.0	1.85

Daily gage height, in feet, of James River at Holcomb Rock, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	4.7	4.0	2.35	3.35	4.55	2.25	1.4	1.3	1.45	1.15	.85	1.6
22	5.25	4.1	2.6	3.25	10.4	2.15	1.35	.9	1.25	.9	1.0	1.45
23	5.5	4.2	2.65	3.25	7.7	2.0	1.35	1.1	1.2	.9	1.0	1.5
24	6.1	5.0	3.1	4.15	5.6	2.05	1.4	1.15	1.15	.8	1.0	1.25
25	6.05	6.05	4.55	4.5	4.4	2.0	1.1	1.05	1.0	.95	1.0	1.3
26	5.15	6.1	7.5	3.95	5.95	2.0	1.4	1.25	.85	1.1	.95	1.35
27	4.3	5.15	5.8	3.5	7.95	2.0	1.5	.9	1.2	1.15	.95	1.35
28	3.7	4.35	4.7	3.15	6.45	2.15	1.4	1.0	1.0	1.2	.85	1.4
29	3.3	....	4.25	2.95	5.0	2.3	1.3	.75	1.05	1.15	1.0	1.4
30	3.2	....	4.1	2.9	3.9	2.5	1.3	1.05	1.0	.95	1.0	1.15
31	3.0	....	3.7	....	3.55	....	1.45	1.05	....	.9	....	1.0
1910												
1	1.05	2.05	4.8	1.7	2.65	1.55	2.15	1.45	1.3	1.15	1.15	1.05
2	1.2	1.9	7.2	1.6	2.5	1.5	2.1	1.4	1.4	.8	.9	1.1
3	1.4	1.95	5.85	1.45	2.3	1.5	2.0	1.35	1.35	1.05	.9	.95
4	1.45	2.25	4.9	1.75	2.15	1.5	1.9	1.5	1.25	.85	1.0	.65
5	1.75	2.5	4.2	1.8	2.05	1.15	2.15	1.4	1.4	.95	1.1	1.1
6	1.95	2.5	3.55	2.0	1.85	1.55	2.0	1.3	1.7	.9	.8	1.3
7	2.85	2.35	3.35	1.9	1.8	1.6	2.55	1.15	1.35	1.0	1.0	1.0
8	5.45	2.1	3.05	1.8	1.65	1.75	2.4	1.4	1.3	1.3	1.0	1.2
9	3.7	2.2	2.85	1.8	2.05	1.7	2.4	1.3	1.4	1.45	.95	1.15
10	2.9	2.1	2.65	1.5	1.85	1.6	2.4	1.35	1.4	1.5	.95	1.05
11	2.3	2.0	2.6	1.6	1.8	2.95	2.45	1.3	.8	1.5	1.0	.8
12	2.25	2.0	2.5	1.6	1.8	7.35	2.2	1.25	1.1	1.5	1.0	1.25
13	2.15	1.6	2.35	1.85	1.8	10.35	2.1	1.3	1.05	.85	.25	1.1
14	2.0	1.85	2.25	2.35	1.8	15.6	2.25	.7	1.0	1.05	1.0	.95
15	1.9	1.9	2.2	2.4	1.65	10.2	2.9	1.35	1.1	.95	.95	1.0
16	1.75	1.95	2.2	2.3	1.7	12.65	2.9	1.3	1.2	.8	1.0	.9
17	1.8	2.7	2.1	3.65	1.7	14.5	3.75	.9	1.2	.95	1.0	.9
18	1.7	9.0	2.1	5.75	1.7	9.8	4.35	1.05	.7	.75	.9	.6
19	1.85	8.95	2.1	5.45	1.7	6.8	7.7	1.35	1.0	1.1	.8	.8
20	2.1	5.3	2.0	4.45	1.7	5.85	4.9	1.2	1.1	1.05	.65	.75
21	4.05	4.35	2.0	3.8	1.7	4.65	3.55	.85	.85	1.15	1.0	1.05
22	8.65	4.2	1.9	3.25	1.4	4.1	2.95	1.3	.95	1.35	.9	.8
23	6.45	4.45	1.9	2.85	2.95	3.75	2.65	1.3	.85	1.05	.95	1.0
24	4.35	4.25	1.7	2.65	1.7	3.7	2.0	1.5	.85	1.45	.95	1.15
25	3.4	3.55	1.75	2.55	1.85	3.9	2.15	1.15	.8	1.4	.85	1.05
26	2.95	3.2	1.75	2.7	1.9	2.85	1.95	.55	1.05	1.35	1.05	1.25
27	2.65	2.8	1.55	2.8	1.95	2.75	1.9	1.15	.95	1.1	.5	1.8
28	2.55	2.95	1.75	2.9	1.8	2.7	1.8	1.0	1.15	1.1	1.15	1.15
29	2.45	....	1.7	2.9	1.6	2.4	1.8	1.35	.95	1.15	1.2	1.35
30	2.3	....	1.7	2.9	1.7	2.4	1.7	1.3	.95	.85	1.15	1.6
31	2.3	....	1.65	....	1.55	....	1.35	1.3	....	.85	....	2.75
1911												
1	5.1	6.3	1.9	4.25	2.4	1.45	1.15	0.7	4.85	0.95	1.45	1.8
2	6.2	4.8	1.9	3.65	2.45	1.4	.9	.8	3.45	.9	1.4	1.7
3	8.5	4.2	1.9	3.5	2.45	1.2	.85	.75	2.35	1.0	1.4	1.65
4	11.0	3.7	1.9	3.9	2.4	1.2	.95	1.1	1.9	1.1	1.25	1.7
5	7.5	3.1	1.6	7.55	2.2	1.25	1.15	1.05	1.65	1.25	1.3	1.65
6	4.8	3.0	2.0	9.55	2.2	1.5	1.75	1.15	1.4	.9	1.3	1.6
7	3.6	2.8	4.0	7.65	1.95	1.7	1.2	1.0	1.3	.95	3.65	1.5
8	2.8	2.6	3.9	6.4	2.05	1.8	1.5	1.0	1.2	1.05	5.4	1.4
9	2.6	2.8	3.2	6.3	1.9	2.45	1.4	.9	1.2	1.0	3.65	1.4
10	2.2	4.3	3.4	6.1	2.0	1.8	1.35	1.05	1.1	1.1	2.95	1.4
11	2.1	4.4	6.3	5.1	2.0	1.25	1.2	.9	1.25	1.15	2.65	1.4
12	2.1	3.5	5.8	4.55	1.8	1.5	1.4	.85	1.25	1.2	2.45	1.3
13	2.0	3.2	4.6	4.0	1.75	1.4	1.4	.65	1.3	1.25	2.35	1.3
14	2.2	3.0	4.2	3.9	1.3	1.3	1.4	1.25	1.5	1.0	2.4	1.3
15	2.3	2.8	4.4	5.1	1.75	1.25	1.7	1.35	1.45	1.3	2.4	1.4

Daily gage height, in feet, of James River at Holcomb Rock, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	2.4	2.6	4.1	6.05	1.5	1.15	1.4	1.4	1.3	1.25	2.3	2.1
17	2.2	2.4	3.6	5.55	1.5	1.15	1.25	1.3	1.15	1.7	2.3	2.4
18	2.2	2.3	3.2	4.65	1.5	1.0	1.15	1.15	1.2	6.85	2.1	2.4
19	2.0	2.0	2.9	4.15	1.5	1.2	1.1	1.1	1.35	8.35	2.1	2.25
20	1.9	2.4	3.2	4.0	1.35	1.25	.95	.85	1.3	4.25	2.55	2.1
21	1.9	2.4	3.9	4.4	1.2	1.2	.65	.8	1.3	3.05	2.6	1.8
22	1.9	2.4	3.6	4.25	1.4	1.2	1.0	1.0	1.2	2.55	2.5	1.8
23	3.6	2.3	3.2	3.7	1.05	1.2	.95	.8	1.2	2.45	2.1	4.15
24	4.6	2.2	3.0	3.65	1.3	1.2	.8	.75	.85	2.3	2.1	6.3
25	3.6	2.2	2.6	3.25	1.3	1.2	.7	.85	1.1	2.3	1.9	5.55
26	3.1	1.9	2.4	2.9	1.25	1.3	.7	.75	1.05	2.15	1.9	5.15
27	2.7	2.0	3.0	2.75	1.35	1.2	.8	1.0	.9	2.05	1.9	5.15
28	2.8	2.0	4.0	2.55	1.3	1.2	.7	.95	.7	1.9	1.9	5.35
29	2.7	....	3.8	3.25	1.4	1.15	.7	1.0	1.1	1.7	1.8	4.65
30	5.4	....	3.9	2.3	1.45	1.1	.7	1.65	.9	1.7	1.8	4.0
31	10.5	....	4.5	....	1.2	....	.95	4.4	....	1.7	....	3.5
1912												
1	4.7	4.4	4.5	7.05	2.65	2.05	2.25	1.35	0.85	1.35	.85	1.05
2	5.0	3.5	3.9	6.55	2.6	1.9	2.15	1.3	.85	1.3	1.0	1.3
3	4.15	3.1	3.4	8.2	2.5	2.05	2.1	1.3	.9	1.0	.85	1.2
4	3.6	2.35	3.2	7.0	2.5	2.0	1.8	.85	.85	1.2	.9	1.15
5	2.35	2.4	3.0	5.65	2.1	1.9	1.85	1.05	.8	1.1	.8	1.25
6	2.6	2.7	2.75	4.85	2.35	1.8	1.95	1.0	.85	.8	.80	1.4
7	2.65	2.45	2.65	4.5	2.3	1.8	1.95	1.0	.75	1.1	1.9	1.35
8	2.65	2.15	2.55	4.3	2.8	1.65	1.8	.85	.9	.95	4.45	1.15
9	2.35	2.1	3.15	3.8	2.4	1.45	1.7	1.0	1.05	.9	3.75	1.55
10	2.15	2.1	4.1	3.55	2.7	1.45	1.5	1.0	1.0	.95	3.05	1.5
11	2.25	1.7	4.1	3.35	2.4	1.4	1.5	.9	1.0	1.0	2.35	1.4
12	2.2	1.85	4.05	3.2	12.85	1.4	1.5	1.0	.95	.95	2.05	1.25
13	1.95	1.8	7.25	2.95	12.05	1.45	1.85	.80	.95	.65	1.9	1.35
14	1.55	1.85	7.75	2.75	8.0	1.4	1.4	1.15	.55	1.0	1.8	1.2
15	1.05	1.75	8.95	2.8	6.1	1.3	2.3	1.1	.85	.75	1.7	.85
16	2.15	1.7	14.95	2.75	7.1	1.2	1.65	.95	.8	.85	1.7	1.25
17	1.85	1.65	10.5	3.45	11.1	1.35	1.55	.8	.0	1.1	1.25	1.3
18	1.8	1.6	7.3	4.0	7.95	1.45	1.45	.8	.9	.9	1.5	1.15
19	1.9	1.7	5.95	3.6	5.95	1.4	1.6	.7	1.5	1.05	1.25	1.3
20	2.6	1.85	5.2	3.55	4.95	1.5	1.6	.95	1.4	.65	1.15	1.1
21	3.3	2.25	4.75	2.9	4.2	1.5	1.4	1.0	1.0	.85	1.25	1.25
22	3.2	7.55	4.65	2.9	3.7	1.4	1.4	1.0	.75	.85	1.3	1.0
23	2.95	8.65	4.4	2.8	3.35	1.35	1.4	.75	1.75	1.0	1.25	1.15
24	2.75	5.4	4.9	2.7	3.0	1.55	1.35	.9	3.9	1.05	1.05	1.15
25	2.6	4.6	9.15	2.55	2.8	1.45	1.4	.85	2.85	1.0	1.35	1.1
26	2.6	4.3	9.85	2.35	2.5	1.8	1.35	.85	2.45	.95	1.3	1.2
27	2.5	7.5	7.1	2.4	2.55	1.8	1.4	1.0	2.1	.8	1.2	1.15
28	2.4	7.65	5.8	2.3	2.45	2.5	1.4	.8	1.8	.9	1.2	1.15
29	2.4	5.65	11.8	2.85	2.35	2.4	1.35	.85	1.35	.95	1.15	1.1
30	2.85	....	15.45	2.8	2.3	2.0	1.4	.85	1.6	1.0	1.0	1.25
31	4.95	....	9.1	....	2.15	....	1.15	.9	....	.8	....	1.15
1913												
1	5.95	2.9	3.5	3.55	1.4	3.0	1.15	0.95	0.5	—0.15	0.7	1.2
2	3.8	2.8	2.45	3.15	1.15	2.6	1.1	1.5	.1	.1	.6	2.25
3	3.45	3.0	2.05	2.6	1.05	2.45	1.1	1.2	.15	— .25	.6	3.1
4	3.7	3.1	1.6	2.25	1.3	2.4	4.9	1.2	.25	.0	.35	2.45
5	3.8	4.4	1.35	2.2	1.25	2.4	2.25	1.0	.2	.2	.35	2.0
6	3.2	3.8	1.25	1.95	1.3	2.05	1.7	1.05	.15	— .2	.35	1.45
7	2.8	3.35	1.15	1.75	1.25	1.85	1.5	1.25	— .25	.05	.25	1.5
8	3.6	2.85	.9	1.55	1.35	2.25	1.25	1.25	.05	— .35	.3	1.65
9	4.3	2.4	.65	1.5	1.4	2.15	1.1	1.2	— .05	— .4	5.7	1.85
10	4.05	2.45	.85	1.3	1.4	1.9	1.0	.6	— .3	.25	8.05	1.7

Daily gage height, in feet, of James River at Holcomb Rock, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	3.4	2.35	1.2	1.35	1.1	1.55	1.5	.9	— .2	.35	4.3	1.5
12	2.85	.95	2.35	5.85	1.2	1.5	2.1	1.4	— .1	.4	3.0	1.35
13	2.75	.9	2.05	8.2	1.2	1.4	1.3	1.65	— .2	.6	2.3	1.25
14	2.5	.8	9.45	8.9	1.2	1.4	1.1	2.15	— .5	.6	2.05	1.05
15	2.5	.65	12.3	8.55	1.2	1.2	1.1	1.45	— .35	.4	2.65	1.05
16	2.5	.5	11.4	9.3	1.2	1.2	.85	1.3	— .35	.45	2.65	1.0
17	2.25	.7	7.35	6.9	1.3	1.15	.35	1.0	— .1	.15	3.2	.9
18	2.1	.6	4.9	4.95	1.2	1.2	.65	1.05	— .1	.15	3.35	.9
19	2.0	.6	3.55	3.9	1.2	1.05	.95	.9	.0	.1	2.7	.85
20	2.05	.5	2.95	3.25	1.2	1.2	1.9	1.25	— .3	.8	2.25	.8
21	2.0	.6	2.5	2.75	1.2	1.55	1.85	1.3	.75	1.1	1.85	.45
22	1.85	.6	2.15	2.35	1.6	.85	1.2	1.1	.6	1.55	1.5	.7
23	1.8	.35	1.85	2.2	4.8	1.35	1.25	1.0	.45	1.35	1.25	.6
24	1.75	.65	1.6	2.1	9.3	1.2	1.25	.8	.45	1.15	1.25	.75
25	1.8	.55	1.4	1.8	6.7	1.2	1.05	1.0	.25	1.95	1.0	.8
26	1.7	.55	1.65	1.7	4.35	1.1	1.3	1.0	.2	2.65	1.0	3.35
27	2.15	.75	7.75	1.7	....	1.65	.65	.95	.1	2.35	.95	4.9
28	3.9	3.05	25.8	1.65	6.1	1.4	1.15	.8	.1	1.85	.9	3.35
29	4.4	....	8.05	1.6	6.45	1.3	1.1	.8	— .05	1.45	.85	2.65
30	3.55	....	5.7	1.55	4.45	1.2	1.05	.65	— .15	1.25	.9	2.15
31	3.05	....	4.2	....	3.45	....	.9	.55	....	.9	....	1.85
1914												
1	1.75	9.85	2.7	2.5	2.05	0.3	—0.45	—0.35	0.3	—0.6	—0.4	2.7
2	1.55	7.0	2.7	2.5	1.85	.2	— .4	— .4	— .45	— .7	— .4	3.05
3	2.3	4.7	2.4	2.75	1.55	.35	.1	— .5	— .35	— .65	— .5	2.25
4	3.7	3.7	2.2	2.75	1.55	.2	— .45	— .4	— .3	— .65	— .35	1.7
5	2.85	3.2	2.15	2.5	1.5	.1	.15	— .45	— .45	— .4	— .4	8.65
6	2.35	3.25	2.1	2.3	1.65	.2	.65	— .4	— .6	— .3	— .4	8.65
7	2.25	5.6	2.1	2.05	1.8	.0	.35	— .4	— .6	— .3	— .55	5.3
8	2.2	7.6	1.9	1.9	1.7	.15	.1	— .4	— .6	— .35	— .3	3.45
9	2.35	5.75	2.0	1.9	1.6	.1	.45	— .4	— .55	— .35	— .4	2.7
10	3.7	4.35	1.75	1.9	1.25	.0	— .2	— .35	— .5	— .1	— .5	2.2
11	5.05	3.6	1.8	1.8	1.3	.05	.3	— .4	— .45	— .3	— .55	2.05
12	3.9	2.9	2.1	1.5	1.2	.05	.0	.0	— .35	— .3	— .4	1.85
13	2.9	2.55	2.8	1.6	1.1	.05	.8	— .15	— .45	— .45	— .55	1.65
14	2.25	2.05	2.9	1.5	1.0	.0	1.15	— .35	— .35	— .2	— .4	1.6
15	2.1	2.0	2.65	2.35	.9	.0	1.1	— .3	— .5	— .25	.55	1.35
16	2.0	2.05	3.0	3.25	.85	.0	.9	— .4	— .5	1.65	1.2	1.0
17	1.8	1.75	4.05	4.3	.6	— .2	.95	— .4	— .6	2.4	.9	.6
18	1.45	1.7	5.65	3.7	.8	— .1	.5	— .4	— .5	1.1	.55	.75
19	1.45	3.15	6.25	2.9	.75	— .35	.25	— .5	— .6	.55	.4	.8
20	1.4	7.5	4.75	2.7	.6	— .1	.05	— .6	— .6	.25	.2	1.35
21	1.45	7.2	3.95	3.05	.5	— .4	— .15	— .6	— .5	.1	.1	2.9
22	4.05	5.25	3.3	3.35	.4	— .25	— .2	— .6	— .6	.1	.0	4.4
23	3.5	4.85	2.95	2.85	.45	— .25	— .2	— .6	— .5	— .05	— .1	4.4
24	2.75	4.7	2.8	2.4	.2	— .3	— .2	— .5	— .6	— .1	— .05	3.05
25	3.35	3.8	2.5	2.45	.45	.0	— .4	— .5	— .5	— .2	— .15	2.4
26	6.1	3.8	2.4	1.9	.3	— .2	— .35	.0	— .6	— .1	— .15	2.0
27	4.25	3.4	2.5	4.35	.35	— .1	— .4	.05	— .6	— .25	— .2	1.5
28	3.3	2.6	3.2	3.1	.2	— .15	— .2	— .1	— .6	— .3	— .3	1.3
29	2.75	....	2.9	2.45	.25	.2	— .35	.05	— .6	— .3	— .3	1.25
30	2.35	....	2.8	2.1	.45	— .1	— .4	.0	— .6	— .3	— .1	2.25
31	3.8	....	2.5	....	.3	....	— .4	.05	....	— .3	....	4.6

JAMES RIVER AT CARTERSVILLE, VA.

Location.—At highway bridge between Pemberton and Cartersville, about 50 miles above Richmond. Willis River enters from the south about one mile above station, and Rivanna River from the north about 7 miles above.

Drainage area.—6,230 square miles.

Records available.—January 1, 1899, to December 31, 1914.

Gage.—Chain on downstream side and near Cartersville end of bridge. Wire gage used previous to July 24, 1903.

Discharge measurements.—Made from bridge.

Channel and control.—Both banks high; left bank overflows at a stage of about 20 feet. Bed of stream composed of rocks and sand; changes somewhat during floods.

Extremes of discharge.—Maximum stage observed: 26.7 feet at 6 p. m., December 30, 1901; discharge approximately 106,000 second-feet. Minimum stage observed: 0.5 foot, October 3, 1914; discharge 800 second-feet. A discharge of 603 second-feet (gage height, 0.42 foot) was measured September 8, 1897, but gage height of this measurement is probably subject to error.

Winter flow.—Ice forms only during severe winters, but discharge relation is seldom affected thereby.

Accuracy.—Records good except when changes in discharge relation, caused by shifting channel, have not been well determined by discharge measurements. Estimates at extremely high stages may be subject to considerable error, as discharge above point of overflow has not been accurately determined.

Discharge measurements of James River at Cartersville, Va., in 1906–1915.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
June 7	Robert Follansbee	2.22	3,400
1907			
July 27	R. G. Knight	1.76	3,220
1908			
Apr. 28	Follansbee and Barrows	3.63	6,420
1909			
July 21	G. C. Stevens	1.91	2,700
Sept. 9	Stevens and Thomas	1.09	1,470
1910			
Sept. 7	G. C. Stevens	1.62	2,690
1911			
July 30	Mathers and Dean	.65	1,020
1912			
Mar. 18	E. A. Porter	12.8	35,100
Nov. 20	Jackson and Batchelder	1.84	3,010
1914			
Oct. 1	Mathers and Morgan	.62	1,050
1915			
June 26	H. J. Dean	1.61	2,630

Daily gage height, in feet, of James River at Cartersville, Va., for 1906–1914.

[B. W. Palmore, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	4.98	5.37	2.22	8.62	2.9	2.6	3.0	2.98	6.03	4.88	3.95	3.1
2	4.38	4.3	2.4	8.2	2.88	4.85	2.15	3.75	5.38	3.50	3.65	2.95
3	3.85	4.2	2.52	6.95	2.8	3.62	1.9	3.6	4.55	5.15	3.45	2.8
4	17.0	3.38	10.1	6.05	2.8	2.59	1.85	2.78	3.97	12.4	3.22	2.7
5	12.2	3.6	8.25	5.32	2.7	2.1	2.5	2.55	3.52	15.2	3.1	2.7
6	11.2	3.5	7.05	4.9	2.78	2.05	2.38	2.2	3.15	11.9	3.0	2.62
7	7.9	3.3	5.85	4.6	2.75	2.08	2.42	1.7	2.92	9.4	2.9	2.5
8	6.15	3.15	4.9	4.25	3.8	2.05	2.15	2.92	2.7	7.2	2.8	2.48
9	5.35	3.08	4.38	4.15	3.3	2.08	1.85	2.98	2.5	6.65	2.72	2.45
10	4.7	3.45	3.95	5.45	2.9	1.97	1.6	4.0	2.4	5.52	2.65	2.35
11	4.1	3.0	3.5	5.02	2.9	1.8	1.6	3.72	2.05	4.82	2.75	2.35
12	3.85	2.82	3.3	5.2	2.72	1.7	1.6	3.65	2.2	4.12	2.85	2.5
13	3.8	2.65	3.15	5.15	2.6	1.6	1.68	4.82	2.5	3.62	2.85	2.38
14	3.9	2.8	3.02	4.7	2.55	1.65	1.55	3.72	3.15	3.25	2.68	2.3
15	4.12	2.65	3.3	10.0	2.25	1.85	1.42	2.95	2.55	3.12	2.55	2.25
16	4.1	2.5	8.65	9.4	2.35	1.75	1.3	4.32	2.4	2.9	2.65	2.2
17	4.0	2.4	6.45	7.25	2.28	2.0	1.6	5.58	2.25	2.82	2.58	2.2
18	3.95	2.32	6.95	6.82	2.2	2.4	1.7	9.32	2.08	3.1	2.48	3.8
19	3.9	2.38	5.98	5.9	2.15	1.88	1.6	6.75	2.15	7.8	8.9	3.75
20	3.7	2.1	8.7	5.15	2.12	1.98	1.58	5.32	2.38	21.8	9.95	8.2
21	3.55	2.3	6.95	4.75	2.2	5.2	2.72	5.65	2.11	23.3	10.8	7.48
22	3.32	2.38	6.58	4.47	2.0	7.05	2.3	4.82	2.02	18.7	10.2	6.0
23	3.28	2.45	5.62	4.15	2.8	6.85	2.88	6.55	2.0	12.2	7.3	5.25
24	3.95	2.3	5.0	3.95	1.9	4.47	3.3	4.6	2.2	9.55	5.95	4.72
25	11.3	2.2	4.92	3.58	1.78	3.68	2.5	7.0	2.3	8.05	4.85	4.15
26	7.82	2.15	4.71	3.49	1.75	3.08	1.9	5.35	2.32	7.08	4.45	3.62
27	6.22	2.0	5.3	3.48	2.72	5.3	1.65	6.28	2.25	6.2	4.18	3.3
28	9.0	2.2	5.71	3.5	2.85	3.65	1.95	9.05	2.05	5.9	3.82	3.5
29	7.6	....	8.2	3.15	4.75	3.6	2.75	7.45	2.02	5.0	3.45	3.42
30	6.3	....	9.05	2.95	3.48	3.45	5.4	9.1	2.35	4.55	3.22	3.3
31	5.85	....	10.5	....	3.28	....	4.35	7.55	....	4.2	....	3.35
1907												
1	5.78	3.15	4.25	3.75	4.00	5.55	3.44	1.62	1.50	2.64	1.32	3.68
2	6.55	3.52	4.88	3.52	4.01	21.00	3.14	1.64	1.32	2.42	1.38	3.35
3	7.35	3.45	5.40	5.02	4.20	15.14	3.10	1.49	1.25	2.38	2.75	3.14
4	6.38	3.42	6.70	4.50	3.92	11.25	2.70	1.68	3.28	2.08	3.09	2.88
5	5.40	3.48	6.79	3.92	3.88	8.10	2.58	1.48	4.28	1.92	2.74	2.60
6	5.15	3.60	5.50	3.68	3.62	7.40	2.46	1.31	2.50	1.82	3.10	2.58
7	4.68	3.48	5.10	5.75	6.55	6.20	2.42	1.48	1.56	1.70	2.58	2.48
8	4.38	3.35	4.65	8.20	5.65	5.78	2.64	1.55	1.58	1.62	2.35	2.38
9	4.12	3.22	4.35	12.40	9.90	5.57	2.26	1.52	1.66	1.72	2.08	2.65
10	3.80	3.75	4.57	14.10	7.62	5.52	2.30	1.79	1.59	1.66	2.18	5.00
11	3.52	4.10	4.75	12.30	6.35	7.10	2.06	2.30	1.62	1.58	2.50	11.00
12	3.65	4.22	4.88	9.00	5.30	6.20	2.08	2.36	1.82	1.68	2.56	10.20
13	3.60	4.35	6.00	7.50	5.20	5.98	2.14	2.55	2.00	1.74	3.34	8.70
14	3.65	4.22	5.90	7.50	4.65	10.02	2.18	2.56	2.38	1.58	3.42	8.70
15	3.55	4.08	7.45	7.75	4.30	16.89	2.14	2.05	1.88	1.69	2.85	9.00
16	4.10	3.98	7.52	5.25	4.05	15.10	1.86	1.71	1.82	1.58	2.58	7.60
17	4.65	3.75	6.58	4.70	4.92	9.00	1.98	1.65	1.62	1.40	2.52	6.30
18	6.21	3.62	5.82	4.42	4.42	7.30	1.98	2.11	1.56	1.52	2.40	6.00
19	7.65	3.58	5.28	4.25	4.00	5.95	1.90	1.68	1.59	1.29	3.72	5.15
20	7.70	3.38	5.15	4.20	3.70	5.30	3.18	1.48	1.52	1.30	3.68	4.76
21	7.40	3.40	4.90	4.00	3.45	4.85	3.05	1.54	1.58	1.36	3.62	4.20
22	6.68	3.38	5.80	3.80	3.10	4.20	2.28	1.58	1.71	1.25	4.20	3.98
23	5.30	3.15	5.60	3.75	3.02	4.50	2.12	1.38	4.20	1.32	4.88	5.86
24	4.48	3.05	5.00	5.50	2.85	4.82	1.90	1.74	19.00	1.30	9.30	13.60
25	3.90	2.88	4.45	5.02	2.85	4.85	1.81	1.69	11.60	1.21	10.70	12.50

Daily gage height, in feet, of James River at Cartersville, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	3.85	3.68	4.10	5.42	2.90	4.35	1.72	1.64	6.68	1.24	9.00	10.00
27	3.55	3.78	3.70	5.48	2.78	3.90	1.71	1.92	4.70	1.32	7.59	7.82
28	3.30	4.02	3.62	5.08	2.95	4.80	1.74	2.19	3.76	1.22	5.75	7.52
29	3.00	....	3.42	4.58	2.62	4.10	1.59	1.90	3.38	1.58	4.98	7.12
30	3.02	....	3.15	4.35	2.52	3.85	1.50	1.62	3.16	1.60	4.00	5.75
31	3.15	....	3.15	....	2.65	....	1.68	1.48	....	1.36	....	6.48
1908												
1	6.67	3.77	5.79	6.03	4.28	4.35	2.41	2.75	2.68	2.32	6.78	2.18
2	6.53	3.87	5.17	10.63	4.05	3.94	2.92	2.40	2.44	2.04	5.25	2.28
3	5.77	3.93	5.07	10.37	4.12	3.75	2.48	1.98	2.20	1.74	4.30	2.18
4	5.21	3.80	6.27	9.02	4.02	5.72	2.68	1.78	2.05	1.68	3.81	2.02
5	5.55	3.67	6.00	7.65	3.91	7.31	2.48	1.84	1.94	1.62	3.32	2.11
6	5.20	3.69	7.65	6.26	4.02	5.88	2.38	1.79	8.20	1.50	3.04	2.18
7	5.20	3.87	9.00	5.66	5.70	6.46	2.78	1.69	6.88	1.50	2.90	3.92
8	14.13	3.73	10.45	5.25	8.02	5.06	3.10	1.76	4.52	1.50	2.75	4.72
9	8.65	3.57	9.07	4.89	9.06	4.30	2.92	1.75	3.32	1.48	2.58	3.58
10	7.00	3.53	8.33	4.61	7.84	4.18	2.78	2.43	2.78	1.53	2.42	3.15
11	5.66	3.67	7.21	4.42	6.21	4.05	2.00	2.18	2.52	1.68	2.48	3.15
12	11.70	3.67	6.56	4.25	5.42	3.88	2.40	2.12	2.31	1.64	2.41	3.80
13	17.28	4.47	6.10	4.19	4.98	3.70	1.96	2.08	2.12	1.64	2.38	4.62
14	19.35	6.70	5.64	4.09	4.38	3.66	1.81	2.15	1.94	1.71	2.29	4.28
15	11.45	12.77	5.20	4.07	3.98	3.79	1.80	1.88	1.85	1.81	2.68	4.32
16	9.05	19.04	4.95	4.18	3.62	[illegible]	1.68	1.72	1.78	1.66	3.10	3.82
17	7.47	19.65	4.84	4.32	3.30	5.02	1.44	1.55	1.71	1.59	2.68	3.42
18	6.57	11.13	4.75	3.97	3.55	[illegible]	1.50	1.52	1.62	1.50	2.68	3.15
19	6.03	8.85	4.87	4.02	4.14	[illegible]	1.36	1.36	1.54	1.40	2.51	2.98
20	5.39	8.67	5.49	4.15	4.92	[illegible]	1.31	1.72	1.46	1.42	2.78	2.88
21	5.03	7.63	5.99	3.98	8.18	2.18	1.31	1.70	1.44	1.40	3.82	2.78
22	4.67	6.67	6.13	3.83	9.50	3.96	1.35	1.39	1.42	1.41	3.80	2.75
23	4.47	6.13	5.83	3.63	8.03	3.25	1.69	1.34	1.46	1.42	3.18	2.90
24	4.11	5.27	6.05	3.55	8.48	[illegible]	2.78	1.26	1.46	1.75	3.12	2.94
25	3.95	4.96	5.80	3.37	[illegible]	3.38	2.74	1.38	1.39	3.72	2.92	3.30
26	3.75	6.23	5.57	3.45	6.35	[illegible]	2.78	13.84	1.39	6.14	2.78	3.48
27	4.53	8.17	5.29	3.42	5.46	2.55	3.98	9.84	1.38	4.35	2.72	3.92
28	4.40	6.54	4.72	3.61	5.02	[illegible]	5.08	7.04	2.34	3.78	2.50	4.51
29	4.30	6.10	4.63	3.97	5.16	2.28	3.66	5.18	4.93	5.12	2.38	4.96
30	4.53	....	4.37	3.78	4.95	[illegible]	4.04	3.87	3.22	8.20	2.28	6.26
31	4.00	....	4.49	....	5.58	....	3.25	3.18	....	8.41	....	7.61
1909												
1	9.15	4.52	6.12	5.16	4.75	4.98	3.32	1.42	1.18	1.24	1.32	1.24
2	8.38	3.86	5.70	4.85	6.00	6.78	3.45	3.02	1.14	1.18	1.26	1.22
3	7.45	3.75	5.20	4.50	5.80	5.85	3.50	2.68	1.10	1.08	1.24	1.18
4	6.18	3.70	5.58	4.26	6.82	6.96	3.30	2.08	1.04	1.06	1.26	1.16
5	8.20	3.66	5.55	4.12	5.18	9.32	3.05	1.89	1.01	1.04	1.29	1.18
6	12.22	3.55	5.50	3.98	4.68	8.02	2.86	1.88	1.06	1.06	1.32	1.26
7	10.68	3.45	6.18	3.85	4.34	[illegible]	3.10	1.95	1.02	1.08	1.26	1.28
8	8.98	3.42	5.98	3.52	4.04	5.48	3.18	1.92	1.06	1.06	1.26	1.34
9	7.40	4.22	5.72	3.36	3.81	5.05	2.98	1.68	1.10	1.06	1.19	1.38
10	6.20	7.02	5.75	3.15	3.63	7.12	3.15	1.70	1.46	1.06	1.22	1.42
11	5.32	9.24	5.79	3.12	3.98	6.56	2.92	1.68	1.96	1.04	1.32	1.36
12	4.88	11.25	5.55	3.15	6.12	6.64	2.42	1.42	1.66	1.28	1.31	1.32
13	4.41	9.02	5.26	3.20	5.55	6.00	2.22	1.44	1.36	2.68	1.28	1.40
14	4.17	7.58	5.05	6.15	4.78	5.05	2.26	1.42	1.20	3.10	1.27	4.78
15	4.14	6.08	4.76	11.95	4.22	4.70	2.12	1.38	1.31	2.58	1.26	5.84
16	4.25	5.68	4.59	15.68	3.88	4.85	2.08	1.52	1.32	2.27	1.25	6.18
17	5.55	5.38	4.47	9.02	3.52	4.50	2.02	1.98	1.38	2.18	1.32	4.26
18	6.86	5.10	4.10	7.98	3.38	5.35	1.94	2.20	1.55	1.64	1.32	3.44
19	7.45	5.95	3.92	6.22	3.06	5.78	1.82	2.04	1.88	1.51	1.34	2.98
20	6.64	7.78	3.84	5.62	2.88	5.05	1.72	1.82	2.84	1.50	1.34	2.54

Daily gage height, in feet, of James River at Cartersville, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	6.68	7.68	3.72	5.28	3.55	5.48	1.84	1.68	2.42	1.36	1.30	2.26
22	6.84	6.05	3.92	4.88	8.10	3.32	1.72	1.52	2.06	1.38	1.32	2.29
23	7.74	6.86	4.16	4.68	11.60	3.14	1.58	1.40	1.88	1.38	1.31	2.02
24	8.12	7.48	4.18	5.00	8.82	3.01	1.54	1.36	1.68	1.34	1.34	1.88
25	7.75	8.98	5.20	5.48	7.15	2.98	1.52	1.34	1.48	1.36	1.36	1.54
26	7.38	8.32	8.00	5.68	6.46	3.00	1.50	1.28	1.42	1.35	1.34	1.54
27	6.68	8.11	8.86	5.22	7.48	2.98	1.40	1.30	1.24	1.34	1.24	1.72
28	5.82	7.52	8.26	4.74	9.08	3.08	1.60	1.28	1.18	1.28	1.26	1.75
29	5.32	....	7.02	4.35	7.80	3.35	1.91	1.28	1.26	1.28	1.26	1.58
30	5.15	....	6.15	4.12	6.88	3.70	1.66	1.22	1.24	1.29	1.25	1.48
31	4.86	....	5.58	....	5.28	....	1.58	1.16	....	1.28	....	1.40
1910												
1	1.45	3.40	7.79	2.17	4.00	2.13	3.03	1.55	1.15	0.79	1.18	1.27
2	1.65	3.06	8.65	2.06	3.67	2.09	2.77	1.53	1.40	.84	1.18	1.16
3	2.01	3.13	9.37	2.23	3.43	1.89	2.61	1.79	1.35	.86	1.32	1.11
4	1.97	3.73	7.63	2.43	3.20	1.83	2.55	1.44	1.43	.78	1.68	1.08
5	2.04	4.26	6.61	2.51	2.93	1.76	3.60	1.39	1.80	.71	1.58	1.08
6	1.91	3.97	6.09	2.41	2.84	1.99	3.07	1.32	1.57	.69	1.40	1.28
7	3.23	3.45	5.15	2.27	2.73	2.07	2.73	1.24	1.60	.72	1.26	1.42
8	3.76	3.17	4.67	2.26	2.79	2.03	3.60	1.17	1.58	1.38	1.28	1.58
9	5.10	3.23	4.37	2.26	2.74	2.07	4.57	1.09	1.46	2.82	1.20	1.51
10	4.57	3.30	4.07	2.17	2.73	2.63	3.70	1.19	1.16	4.06	1.21	1.42
11	3.73	2.94	3.83	2.06	2.77	3.71	2.73	1.23	1.09	2.28	1.18	1.40
12	3.47	2.91	3.61	2.01	2.59	5.93	4.05	1.06	1.02	1.86	1.12	1.42
13	2.97	2.90	3.37	2.31	2.57	10.45	3.35	1.03	1.04	1.56	1.00	1.18
14	2.73	2.79	3.23	2.46	2.53	12.95	4.50	1.06	1.07	1.34	.92	1.12
15	2.63	2.78	3.15	2.63	2.43	17.01	3.87	1.19	1.02	1.27	1.11	1.26
16	2.45	3.20	3.10	3.23	2.33	18.65	3.36	1.29	1.06	1.08	1.02	1.24
17	2.27	3.51	2.94	7.03	2.24	19.89	3.75	1.29	1.01	.99	1.11	1.28
18	2.43	7.50	2.87	10.30	2.31	16.85	4.83	1.21	1.00	.96	1.10	1.34
19	2.46	10.91	2.74	9.35	2.21	11.47	8.10	1.15	.89	.98	1.08	1.38
20	2.43	10.33	2.67	8.35	2.16	8.63	8.66	1.26	.98	1.76	1.00	1.37
21	3.15	7.28	2.60	6.70	2.14	6.87	8.60	1.19	.94	2.25	1.02	1.30
22	10.99	6.67	2.57	5.55	2.23	5.67	4.45	1.43	.89	1.88	1.02	1.25
23	9.80	6.25	2.56	5.00	2.67	4.15	3.85	1.62	.97	2.75	1.00	1.05
24	7.77	5.73	2.47	4.85	2.63	3.73	3.79	1.27	.91	2.12	1.08	1.88
25	6.77	5.47	2.35	5.13	3.01	3.63	3.57	1.17	.88	1.76	1.09	1.98
26	5.03	4.90	2.26	4.67	3.58	3.53	2.47	1.16	.80	1.81	1.08	2.18
27	4.29	4.57	2.25	4.27	3.43	3.45	2.33	1.21	.81	1.58	.96	2.08
28	3.87	4.11	2.23	4.09	2.75	3.44	2.09	1.12	.82	1.45	1.09	2.31
29	3.73	....	2.17	4.15	2.63	3.39	1.87	1.02	.78	1.32	1.08	2.34
30	3.67	....	2.25	4.09	2.35	3.21	1.71	.90	.68	1.39	1.18	2.40
31	3.61	....	2.16	....	2.16	....	1.63	1.06	....	1.32	....	2.52
1911												
1	3.6	11.3	2.4	5.0	3.4	1.35	....	0.50	7.6	0.74	1.7	2.7
2	7.7	8.0	2.3	4.9	3.2	1.25	0.92	.50	5.4	.69	1.6	2.6
3	8.9	6.7	2.3	4.4	3.1	1.1	.84	.66	4.6	.62	1.5	2.4
4	16.2	5.4	2.2	4.5	3.0	1.1	.76	.61	3.5	.78	1.45	2.1
5	13.0	4.8	2.1	7.0	2.8	1.45	.82	.59	3.0	.92	1.35	2.2
6	9.2	3.9	2.1	11.8	2.8	1.8	.74	.58	2.5	.79	1.35	2.0
7	8.2	3.7	2.2	10.7	2.7	1.6	.74	1.15	2.6	.82	2.0	1.9
8	6.0	3.7	2.8	9.3	2.6	1.7	1.7	1.0	1.35	.80	3.0	1.9
9	4.2	3.6	4.8	8.9	2.6	1.9	2.8	1.0	1.1	.82	6.3	1.8
10	4.0	4.2	4.4	8.0	2.6	1.9	2.2	.78	1.1	.89	4.8	1.7
11	3.2	3.7	5.1	7.2	2.5	1.9	1.35	.80	1.1	1.1	3.8	1.6
12	2.9	4.0	5.7	6.6	2.4	1.7	1.25	.76	1.4	.98	3.4	1.5
13	2.8	4.6	6.3	6.0	2.3	1.45	1.1	.72	1.3	1.0	3.0	1.6
14	2.7	4.1	5.6	5.2	2.2	1.4	1.45	.80	1.3	1.1	2.9	1.6
15	2.6	3.7	5.1	5.1	2.1	1.3	1.3	.79	1.1	1.0	2.7	1.6

Daily gage height, in feet, of James River at Cartersville, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	2.6	3.3	4.9	5.6	1.9	1.2	1.2	1.7	1.4	.99	2.7	2.8
17	2.9	3.2	4.7	7.2	2.0	1.2	1.15	1.5	1.5	1.1	2.8	7.4
18	2.8	3.1	4.2	6.6	1.9	1.15	1.3	1.4	1.15	3.6	2.7	4.9
19	2.6	3.4	4.0	5.8	1.7	1.1	.91	.90	1.1	6.8	2.8	4.1
20	2.5	2.8	3.6	6.0	1.6	1.1	.86	.88	1.1	8.8	2.8	3.2
21	2.4	2.7	3.8	5.7	1.6	1.15	.88	.88	1.3	5.0	2.8	3.0
22	2.5	3.1	4.2	5.5	1.5	1.1	.69	.72	1.1	4.8	3.0	3.1
23	2.9	3.0	4.2	5.4	1.35	1.05	.71	.50	1.15	4.2	2.8	7.4
24	3.7	2.9	4.0	5.0	1.5	.98	.62	.54	1.1	3.7	2.7	8.2
25	5.0	2.7	3.5	4.6	1.4	1.3	.58	.52	.98	3.0	2.6	9.2
26	4.5	2.6	3.4	4.2	1.35	1.7	.72	.72	.81	2.7	2.5	7.7
27	4.1	2.5	3.7	3.9	1.3	1.5	.59	.74	.84	2.4	2.4	7.5
28	3.6	2.4	4.2	3.7	1.3	1.2	.57	.76	.80	2.2	2.8	7.0
29	3.5	....	4.4	3.5	1.25	1.1	.61	.90	.78	2.0	4.0	6.6
30	3.6	....	4.8	3.5	1.2	.98	.58	1.2	.78	1.8	3.2	5.8
31	5.4	....	4.6	....	1.2	....	.62	2.2	....	1.7	....	....
1912												
1	6.1	5.2	7.7	10.1	3.9	2.9	3.1	1.1	0.62	2.5	1.1	1.3
2	5.8	5.4	6.0	9.0	3.8	2.8	3.0	1.1	.61	1.9	1.05	1.35
3	6.1	4.3	5.3	8.6	3.4	2.5	2.4	1.15	.57	1.7	1.1	1.3
4	5.2	4.1	4.6	9.4	3.3	2.5	2.5	1.2	.56	1.5	1.1	1.5
5	4.5	3.6	4.2	8.2	3.2	2.4	2.4	1.2	.58	1.45	1.1	1.7
6	3.7	3.4	4.1	7.2	3.2	2.2	2.3	1.05	.61	1.4	1.05	1.9
7	3.6	3.3	4.2	6.7	3.5	2.6	2.1	1.0	.60	1.3	1.2	2.0
8	3.2	3.2	4.6	6.0	3.9	2.7	1.9	1.0	.68	1.15	10.6	1.9
9	2.8	2.8	5.1	5.5	4.1	2.5	2.2	.94	1.05	1.1	6.6	1.7
10	2.7	2.6	6.0	5.1	3.6	2.0	1.8	.91	.98	1.1	6.1	1.6
11	2.8	2.4	5.2	4.7	3.7	2.0	1.7	.98	.92	1.05	4.1	1.7
12	2.8	2.5	5.9	4.4	13.8	1.8	1.8	1.0	.74	1.0	3.3	1.7
13	3.2	2.5	12.2	4.3	21.4	1.6	1.7	.92	.69	1.0	2.7	1.7
14	4.1	2.3	11.0	4.4	18.0	1.5	1.7	.94	.64	1.15	2.5	1.6
15	5.7	2.2	14.3	4.4	11.8	1.5	1.7	.92	.58	1.2	2.5	1.5
16	5.7	2.3	21.4	4.3	11.8	1.45	2.2	.92	.54	1.25	2.4	1.4
17	5.8	2.4	19.0	4.3	14.5	2.6	2.1	1.2	.56	1.2	2.3	1.4
18	5.8	2.8	13.5	4.3	13.9	2.5	1.7	1.4	.64	1.0	2.0	1.5
19	6.2	3.9	9.4	5.6	10.6	2.4	1.9	1.5	1.05	1.15	1.9	1.5
20	6.2	3.8	7.8	4.6	8.1	2.3	2.2	.94	1.8	1.15	1.9	1.8
21	6.3	4.0	6.9	4.4	6.6	1.8	2.1	.88	1.2	1.2	1.6	1.6
22	6.2	8.4	6.5	4.3	5.9	1.8	1.9	.84	1.1	1.25	1.5	1.4
23	5.6	8.7	6.1	4.3	5.4	2.0	1.2	.82	1.05	1.3	1.5	1.2
24	4.3	10.1	8.7	4.1	4.7	2.3	1.2	.82	11.1	1.45	1.4	1.4
25	3.8	8.8	10.1	3.7	4.4	2.0	1.4	.74	12.7	1.45	1.4	1.5
26	3.4	6.9	11.6	3.5	4.1	1.9	1.5	.70	5.7	1.35	1.35	1.45
27	3.4	12.6	11.5	3.3	3.8	1.9	1.7	.64	4.3	1.25	1.4	1.6
28	3.3	10.2	9.4	3.4	3.5	3.2	1.4	.59	4.3	1.1	1.4	1.7
29	3.3	9.7	14.5	3.6	3.2	2.9	1.05	.63	4.0	1.15	1.4	1.7
30	4.1	....	19.6	3.8	3.1	2.8	1.05	.65	2.5	1.1	1.3	2.4
31	5.1	....	16.3	....	3.3	....	1.1	.64	....	1.1	....	4.4
1913												
1	5.7	4.1	4.4	8.1	3.2	12.2	2.7	1.6	1.2	1.3	2.6	2.3
2	7.2	3.8	4.8	6.1	2.9	6.0	2.4	1.45	1.1	1.7	2.5	2.7
3	5.6	3.4	4.6	5.2	2.8	5.1	2.3	1.5	1.1	1.25	2.1	3.5
4	5.3	3.9	4.1	4.7	2.7	5.6	2.2	2.0	1.4	1.15	2.0	3.9
5	4.9	3.8	3.4	4.2	2.6	5.2	3.4	1.8	1.3	1.1	1.9	4.3
6	4.8	3.2	3.1	4.0	2.5	5.1	4.4	1.6	1.25	1.05	1.8	3.9
7	4.3	3.1	2.9	3.7	2.4	4.4	3.4	2.1	1.15	1.05	1.7	3.7
8	3.7	3.0	2.7	3.5	2.4	7.4	2.4	1.3	1.1	1.0	1.7	3.2
9	3.5	3.0	2.6	3.2	2.4	4.8	2.2	1.25	1.0	1.15	3.0	3.1
10	4.8	2.9	2.4	3.1	2.3	4.1	2.0	1.6	.88	1.3	13.5	3.1

Daily gage height, in feet, of James River at Cartersville, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	4.5	3.9	3.1	2.9	2.3	3.4	3.5	2.3	.95	2.0	10.2	3.0
12	4.1	2.8	3.6	5.3	2.2	3.2	2.1	2.2	.91	1.7	7.2	2.9
13	3.7	2.6	4.8	18.0	2.1	3.0	2.3	1.5	.90	1.5	6.3	2.8
14	3.5	2.4	12.5	16.0	2.1	2.8	2.8	2.7	.92	1.6	4.2	2.7
15	3.0	2.3	19.7	13.6	2.0	2.7	2.2	2.8	.94	1.6	3.8	2.5
16	2.9	2.2	18.9	13.0	2.0	2.5	2.2	2.7	.88	1.55	3.2	2.4
17	2.7	2.1	14.4	12.4	2.2	2.2	2.0	2.2	.78	1.4	5.1	2.4
18	2.7	1.9	10.1	9.7	2.6	2.0	1.8	1.9	.92	1.35	5.2	2.3
19	2.6	1.9	7.8	8.2	2.5	1.9	1.9	1.8	1.0	1.3	5.0	2.2
20	2.4	2.0	6.5	7.3	2.1	1.9	1.8	5.1	1.05	1.7	4.6	2.1
21	2.3	2.0	5.8	6.2	2.1	1.8	....	3.3	1.1	2.5	4.0	2.0
22	2.2	2.0	5.5	5.3	2.2	1.8	....	3.0	3.1	2.4	3.9	2.0
23	2.2	1.9	5.1	4.9	2.9	2.4	....	2.3	3.0	2.3	3.7	2.0
24	2.2	1.9	4.3	4.4	16.3	4.0	2.3	2.5	2.5	2.9	3.0	2.9
25	2.4	1.8	4.0	4.1	15.8	4.3	2.3	3.1	1.7	5.2	2.8	3.3
26	2.3	1.9	3.8	3.9	12.0	4.0	1.9	2.0	1.6	5.8	2.5	6.1
27	2.4	2.0	4.0	3.7	9.8	3.2	1.8	1.9	1.4	4.9	2.4	6.0
28	4.8	2.9	10.9	3.6	10.2	3.1	1.5	1.8	1.25	4.8	2.4	5.9
29	4.9	....	21.6	3.4	8.5	4.1	1.4	1.6	1.15	4.6	2.5	5.5
30	5.6	....	13.0	3.3	8.8	3.8	1.6	1.4	1.1	3.6	2.4	4.6
31	4.7	....	9.1	....	11.0	....	1.3	1.3	....	2.9	....	4.1
1914												
1	3.1	10.1	5.4	5.1	5.0	1.5	1.25	0.96	1.2	0.62	1.1	1.4
2	3.3	11.8	5.3	4.9	4.1	1.5	1.1	.94	1.05	.52	1.05	1.6
3	3.5	9.4	4.6	4.8	3.9	1.6	1.4	.98	.83	.51	1.05	4.5
4	10.6	7.2	4.6	4.7	3.8	1.45	1.25	.95	.80	.56	1.05	4.2
5	9.6	6.3	4.6	4.7	3.6	1.45	1.8	.96	.78	.69	.98	3.8
6	7.0	5.8	4.6	4.6	3.7	1.45	2.3	1.0	.72	.94	.96	8.9
7	5.7	7.6	4.8	4.5	3.6	1.45	2.3	.96	.70	1.0	.91	11.8
8	5.4	8.0	4.8	4.3	3.7	1.45	1.9	.82	.66	.96	.91	8.3
9	4.5	9.5	4.9	4.4	3.8	1.4	1.8	.85	.63	.83	.95	6.3
10	4.3	8.0	4.6	4.1	3.5	1.5	1.6	.71	.60	1.1	1.0	5.2
11	4.5	6.4	4.6	3.9	3.3	1.45	1.35	.68	.58	1.0	1.0	4.6
12	5.7	6.0	4.7	3.8	3.2	1.4	1.35	.80	.66	.96	1.1	4.3
13	5.9	6.0	4.8	3.7	3.2	1.35	1.5	.96	.72	.94	.98	4.0
14	5.3	4.6	5.2	3.6	3.1	1.4	1.7	.93	.72	.94	.96	4.6
15	4.3	4.4	5.0	3.8	3.0	1.35	1.8	1.05	.63	2.1	1.6	4.2
16	3.9	4.3	5.3	6.6	2.7	1.4	2.5	.92	.60	2.6	5.6	3.4
17	3.7	4.0	5.4	6.3	2.5	1.35	2.4	.88	.65	6.2	4.2	2.9
18	3.4	4.2	6.4	6.8	2.4	1.4	2.3	.71	.68	4.8	3.3	2.7
19	3.4	5.4	9.9	6.4	2.3	1.4	2.1	.66	.66	4.1	2.6	2.7
20	3.2	9.2	9.5	5.5	2.3	1.05	1.7	.74	.64	2.5	2.3	3.8
21	3.1	11.2	7.7	5.4	2.2	1.0	1.5	.66	.76	2.3	2.0	5.3
22	2.9	9.9	7.1	5.5	2.2	2.2	1.15	.66	.82	1.7	1.8	7.1
23	3.1	8.5	6.4	5.5	2.1	1.35	1.05	.76	.78	1.4	1.5	7.2
24	3.4	7.9	6.2	5.0	2.0	1.25	.97	.94	.74	1.35	1.5	6.9
25	7.7	7.0	6.1	4.5	1.9	1.15	1.0	.96	.76	1.35	1.4	5.4
26	5.9	6.9	5.2	4.5	1.8	1.4	.97	.84	.76	1.3	1.35	5.1
27	7.4	6.3	5.0	5.0	1.9	1.6	.97	1.3	.75	1.3	1.3	4.4
28	5.7	5.6	4.8	5.8	1.8	1.8	.89	1.5	.78	1.1	1.25	3.5
29	5.2	....	4.7	6.6	1.6	1.9	.87	1.45	.74	1.1	1.3	3.7
30	4.5	....	4.6	5.4	1.6	1.4	.97	1.35	.65	1.1	1.25	4.6
31	5.1	....	4.3	....	1.5	....	1.05	1.25	....	1.1	....	6.0

NOTE.—Ice formed Dec. 22-31, 1909, but river not frozen over. Floating ice in river Dec. 7-16 and 18-21, 1910. Gage stolen July 20 and replaced July 24, 1913.

Daily discharge, in second-feet, of James River at Cartersville, Va., for 1906–1914.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	10,248	11,269	3,920	21,008	5,330	4,700	5,550	5,506	13,064	9,990	7,710	5,770
2	8,742	8,550	4,280	19,620	5,288	9,910	3,780	7,245	11,296	6,670	7,020	5,440
3	7,475	8,310	4,532	15,710	5,120	6,946	3,280	6,900	9,155	10,700	6,560	5,120
4	52,820	6,394	26,100	13,120	5,120	4,679	3,185	5,078	7,758	34,400	6,030	4,910
5	33,670	6,900	19,785	11,134	4,910	3,680	4,490	4,595	6,716	45,300	5,770	4,910
6	29,980	6,670	16,010	10,040	5,078	3,580	4,240	3,880	5,880	32,600	5,550	4,740
7	18,650	6,210	12,565	9,280	5,015	3,640	4,322	2,900	5,374	23,700	5,330	4,490
8	13,400	5,880	10,040	8,430	7,360	3,580	3,780	5,374	4,910	16,500	5,120	4,450
9	11,215	5,726	8,742	8,190	6,210	3,640	3,185	5,506	4,490	14,800	4,950	4,380
10	9,530	6,555	7,710	11,485	5,330	3,420	2,710	7,830	4,280	11,700	4,800	4,180
11	8,070	5,550	6,670	10,352	5,330	3,000	2,710	7,176	3,580	9,830	5,020	4,180
12	7,475	5,162	6,210	10,820	4,952	2,900	2,710	7,015	3,880	8,120	5,220	4,490
13	7,360	4,805	5,880	10,690	4,700	2,710	2,862	9,832	4,490	6,950	5,220	4,240
14	7,590	5,120	5,594	9,530	4,595	2,805	2,620	7,176	5,880	6,100	4,870	4,080
15	8,118	4,805	6,210	25,750	3,980	3,185	2,386	5,440	4,595	5,810	4,600	3,980
16	8,070	4,490	21,110	23,660	4,180	2,995	2,170	8,598	4,280	5,330	4,800	3,880
17	7,830	4,280	14,245	16,615	4,040	3,480	2,710	11,836	3,980	5,160	4,660	3,880
18	7,710	4,120	15,710	15,320	3,880	4,280	2,900	23,388	3,640	5,770	4,450	7,360
19	7,590	4,240	12,924	12,700	3,780	3,342	2,710	15,115	3,780	18,300	22,000	7,240
20	7,130	3,680	21,280	10,690	3,720	3,440	2,674	11,134	4,240	75,800	25,600	19,600
21	6,785	4,080	15,710	9,655	3,880	10,820	4,952	12,025	3,700	84,800	28,600	17,300
22	6,256	4,240	14,622	8,958	3,480	16,010	4,080	9,832	3,520	60,300	26,400	13,000
23	6,166	4,385	11,944	8,190	5,120	15,410	5,288	14,535	3,480	33,700	16,800	11,000
24	7,710	4,080	10,300	7,710	3,280	8,958	6,210	9,280	3,880	24,200	12,800	9,580
25	30,340	3,880	10,092	6,854	3,052	7,084	4,490	15,860	4,080	19,100	9,910	8,190
26	18,394	3,780	9,555	6,647	2,995	5,726	3,280	11,215	4,120	16,100	8,910	6,950
27	13,596	3,480	11,080	6,624	4,952	11,080	2,805	13,764	3,980	13,500	8,260	6,210
28	22,300	3,880	12,187	6,670	5,225	7,015	3,380	22,470	3,580	12,700	7,410	6,670
29	17,700	....	19,620	5,880	9,655	6,900	5,015	17,235	3,520	10,300	6,560	6,490
30	13,820	....	22,470	5,440	6,624	6,555	11,350	22,640	4,180	9,160	6,030	6,210
31	12,565	....	27,500	....	6,166	......	8,670	17,545	....	8,310	....	6,320
1907												
1	12,400	5,880	8,430	7,240	7,830	11,800	6,530	2,750	2,530	4,780	2,210	7,080
2	11,500	6,720	10,000	6,720	7,850	71,300	5,860	2,790	2,210	4,320	2,310	6,320
3	16,900	6,560	11,400	10,400	8,310	45,100	5,770	2,510	2,080	4,240	5,020	5,860
4	14,000	6,490	15,000	9,030	7,640	30,100	4,110	2,860	6,170	3,640	5,750	5,290
5	11,400	6,620	15,200	7,640	7,540	19,300	4,660	2,490	8,500	3,320	4,990	4,700
6	10,700	6,900	11,600	7,080	6,950	17,100	4,410	2,190	4,490	3,130	5,770	4,660
7	9,480	6,620	10,600	12,300	14,500	13,500	4,320	2,490	2,640	2,900	4,660	4,450
8	8,740	6,320	9,400	19,600	12,000	12,400	4,780	2,620	2,670	2,750	4,180	4,240
9	8,120	6,030	8,670	34,400	25,400	11,800	4,000	2,570	2,820	2,940	3,640	4,800
10	7,360	7,240	9,200	40,900	17,800	11,700	4,080	3,070	2,690	2,820	3,840	10,300
11	6,720	8,070	9,660	34,000	14,000	16,200	3,600	4,080	2,750	2,670	4,490	29,300
12	7,020	8,360	10,000	22,300	11,100	13,500	3,640	4,200	3,130	2,860	4,620	26,400
13	6,900	8,670	13,000	17,400	10,800	12,900	3,760	4,600	3,480	2,980	6,300	21,300
14	7,020	8,360	12,700	17,400	9,400	25,800	3,840	4,620	4,240	2,670	6,490	21,300
15	6,780	8,020	17,200	18,200	8,550	52,400	3,760	3,580	3,240	2,880	5,220	22,300
16	8,070	7,780	17,500	11,000	7,950	44,300	3,200	2,920	3,130	2,670	4,660	17,700
17	9,400	7,240	14,600	9,530	10,100	22,300	3,440	2,800	2,750	2,350	4,530	13,800
18	13,600	6,950	12,500	8,840	8,840	16,800	3,440	3,700	2,640	2,570	4,280	13,000
19	17,900	6,850	11,000	8,430	7,830	12,800	3,280	2,860	2,690	2,150	7,180	10,700
20	18,000	6,390	10,700	8,310	7,130	11,100	5,950	2,490	2,570	2,170	7,080	9,680
21	17,100	6,440	10,000	7,830	6,560	9,900	5,660	2,600	2,670	2,280	6,950	8,310
22	14,900	6,390	12,400	7,360	5,770	8,310	4,040	2,670	2,920	2,080	8,310	7,780
23	11,100	5,880	11,900	7,240	5,590	9,030	3,720	2,310	8,310	2,210	10,000	12,600
24	8,980	5,660	10,300	11,600	5,220	9,830	3,280	2,980	61,700	2,170	23,300	39,000
25	7,590	5,290	8,910	10,400	5,220	9,900	3,110	2,880	31,400	2,020	28,200	34,800

Daily discharge, in second-feet, of James River at Cartersville, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	7,480	7,080	8,070	11,400	5,330	8,670	2,940	2,790	14,900	2,070	22,300	25,800
27	6,780	7,310	7,130	11,600	5,510	7,590	2,920	3,320	9,530	2,210	17,400	18,400
28	6,210	7,880	6,950	10,500	5,440	9,780	2,980	3,860	7,270	2,030	12,300	17,500
29	5,550	....	6,490	9,230	4,740	8,070	2,690	3,280	6,390	2,670	10,200	16,200
30	5,590	....	5,880	8,670	4,530	7,480	2,530	2,750	5,900	2,710	7,830	12,300
31	5,880	....	5,880	....	4,800	....	2,860	2,490	....	2,280	....	14,300
1908												
1	14,800	6,800	12,200	12,900	8,080	8,260	3,810	4,500	4,350	3,630	15,200	3,360
2	14,400	7,040	10,500	28,000	7,480	7,210	4,850	3,790	3,870	3,100	10,700	3,550
3	12,200	7,180	10,200	27,000	7,660	6,750	3,950	2,980	3,400	2,540	8,130	3,360
4	10,600	6,870	13,600	22,400	7,410	12,000	4,350	2,610	3,120	2,440	6,890	3,060
5	11,500	6,560	12,800	17,800	7,140	16,800	3,950	2,720	2,910	2,330	5,740	3,230
6	10,600	6,610	17,800	13,600	7,410	12,500	3,750	2,630	19,600	2,130	5,110	3,360
7	10,600	7,040	22,300	11,800	12,000	14,200	4,560	2,450	15,400	2,130	4,810	7,160
8	41,000	6,700	27,300	10,700	19,000	10,200	5,240	2,580	8,700	2,130	4,500	9,240
9	21,100	6,320	22,500	9,700	22,500	8,290	4,850	2,560	5,740	2,100	4,150	6,340
10	15,800	6,220	20,000	8,950	18,500	7,820	4,560	3,850	4,560	2,180	3,830	5,350
11	11,800	6,560	16,500	8,440	13,400	7,480	4,190	3,360	4,030	2,440	3,950	5,350
12	31,800	6,560	14,500	8,000	11,200	7,060	3,790	3,250	3,610	2,370	3,810	6,870
13	54,000	8,570	13,100	7,840	9,950	6,630	2,940	4,350	3,250	2,370	3,750	8,970
14	63,300	14,900	11,800	7,680	8,340	6,530	2,670	3,300	2,910	2,490	3,570	8,080
15	30,900	35,800	10,600	7,540	7,310	6,850	2,650	2,790	2,740	2,670	4,350	8,180
16	22,500	61,900	9,860	7,820	6,440	15,400	2,440	2,510	2,610	2,400	5,240	6,920
17	17,300	64,700	9,570	8,180	5,690	10,100	2,030	2,220	2,490	2,280	4,350	5,970
18	14,500	29,700	9,320	7,280	6,270	9,320	1,940	2,160	2,330	2,130	4,350	5,350
19	12,900	21,800	9,650	7,410	7,710	8,340	1,890	1,890	2,200	1,960	4,010	4,980
20	11,100	21,200	11,400	7,740	9,780	5,690	1,810	2,510	2,060	1,990	4,560	4,770
21	10,100	17,800	12,800	7,310	19,600	5,420	1,810	2,470	2,030	1,960	6,920	4,560
22	9,110	14,800	13,200	6,940	23,500	7,260	1,880	1,940	1,990	1,980	6,870	4,500
23	8,570	13,200	12,300	6,460	19,100	5,580	2,450	1,860	2,060	1,990	6,100	4,810
24	7,640	10,700	13,000	6,270	20,500	6,580	4,560	1,730	2,060	2,560	5,280	4,890
25	7,240	9,890	12,200	5,850	16,600	5,870	4,470	1,930	1,940	6,680	4,850	5,690
26	6,750	13,500	11,600	6,040	13,900	4,850	4,150	39,900	1,940	13,200	4,560	6,100
27	8,730	19,500	10,800	5,970	11,300	4,090	7,310	25,200	1,930	8,260	4,430	7,160
28	8,390	14,400	9,240	6,410	10,100	3,830	10,200	15,900	3,670	6,820	3,990	8,680
29	8,130	13,100	9,000	7,280	10,400	3,550	6,530	11,300	9,810	10,300	3,750	9,890
30	8,730	....	8,310	6,820	9,860	3,830	7,460	7,040	5,510	19,600	3,550	13,600
31	7,360	....	8,620	....	11,600	....	5,580	5,420	....	20,300	....	17,700
1909												
1	22,800	8,700	13,200	10,400	9,320	9,950	5,740	1,990	1,600	1,690	1,820	1,690
2	20,200	7,010	12,000	9,600	12,800	13,600	6,040	5,060	1,530	1,600	1,730	1,660
3	17,200	6,750	10,600	8,650	12,200	12,400	6,150	4,350	1,470	1,440	1,690	1,600
4	13,400	6,630	11,600	8,030	15,300	15,700	5,690	3,170	1,370	1,410	1,730	1,570
5	19,600	6,530	11,500	7,660	10,500	23,400	5,130	2,810	1,330	1,370	1,770	1,600
6	33,700	6,270	11,400	7,310	9,140	19,000	4,730	2,790	1,410	1,410	1,820	1,730
7	28,100	6,040	13,400	6,990	8,230	13,900	5,240	2,920	1,340	1,440	1,730	1,760
8	22,200	5,970	12,800	6,200	7,460	11,300	5,420	2,870	1,410	1,410	1,730	1,860
9	17,100	7,920	12,000	5,830	6,890	10,100	4,980	2,440	1,470	1,410	1,610	1,930
10	13,400	15,900	12,100	5,350	6,460	16,200	5,350	2,470	2,060	1,410	1,660	1,990
11	10,900	23,100	12,200	5,280	7,310	14,500	4,850	2,440	2,940	1,370	1,820	1,890
12	9,660	30,200	11,500	5,350	13,200	14,700	3,830	1,990	2,400	1,760	1,810	1,820
13	8,420	22,400	10,700	5,460	11,500	12,800	3,440	2,030	1,890	4,350	1,760	1,960
14	7,790	17,600	10,100	13,300	9,410	10,100	3,510	1,990	1,630	5,240	1,740	9,410
15	7,710	13,100	9,350	32,700	7,920	9,190	3,250	1,930	1,810	4,150	1,730	12,400
16	8,000	11,900	8,890	47,300	7,060	9,600	3,170	2,160	1,820	3,530	1,710	13,400
17	11,500	11,100	8,570	22,400	6,200	8,650	3,060	2,980	1,930	3,360	1,820	8,030
18	15,400	10,300	7,610	18,900	5,870	11,000	2,910	3,400	2,220	2,370	1,820	6,010
19	17,200	12,700	7,160	13,500	5,150	11,600	2,690	3,100	2,790	2,150	1,860	4,980
20	14,700	18,300	6,970	11,700	4,770	10,100	2,510	2,690	4,680	2,130	1,860	4,070

Daily discharge, in second-feet, of James River at Cartersville, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	14,800	17,900	6,680	10,800	6,270	6,100	2,720	2,440	3,830	1,890	1,790	3,510
22	15,300	13,000	7,160	9,680	19,300	5,740	2,510	2,160	3,130	1,930	1,820	3,570
23	18,100	15,400	7,770	9,140	31,400	5,330	2,270	1,960	2,790	1,930	1,810	3,060
24	19,400	17,300	7,820	10,000	21,700	5,040	2,200	1,890	2,440	1,860	1,860	2,510
25	18,200	22,200	10,600	11,300	16,300	4,980	2,160	1,860	2,100	1,890	1,890	1,980
26	17,000	20,000	19,000	11,900	14,200	5,020	2,130	1,760	1,990	1,880	1,860	1,980
27	14,800	19,300	21,800	10,600	17,300	4,980	1,960	1,790	1,690	1,860	1,690	2,260
28	12,300	17,400	19,800	9,300	22,600	5,200	2,300	1,760	1,600	1,760	1,730	2,300
29	10,960	....	15,930	8,260	18,300	5,800	2,850	1,760	1,730	1,760	1,730	2,040
30	10,400	....	13,300	7,650	15,400	6,030	2,400	1,660	1,690	1,770	1,710	1,890
31	9,620	....	11,600	....	10,800	....	2,270	1,570	....	1,760	....	1,760
1910												
1	2,040	5,920	18,300	3,340	7,360	3,270	5,600	2,450	1,820	1,240	1,880	2,040
2	2,380	5,150	21,100	3,130	6,560	3,020	5,030	2,510	2,270	1,310	1,880	1,840
3	3,040	5,310	23,600	3,460	5,990	2,810	4,690	3,010	2,180	1,250	2,130	1,760
4	2,960	6,700	17,800	3,850	5,460	2,700	4,560	2,340	2,320	1,220	2,790	1,710
5	3,100	8,030	14,600	4,010	4,870	2,580	6,880	2,250	3,030	1,120	2,600	1,710
6	2,850	7,280	13,100	3,810	4,680	3,000	5,680	2,130	2,580	1,080	2,270	2,050
7	5,530	6,040	10,400	3,530	4,450	3,150	4,940	1,980	2,640	1,130	2,020	2,310
8	6,770	5,390	9,110	3,510	4,580	3,080	6,880	1,860	2,600	2,230	2,050	2,600
9	10,300	5,530	8,310	3,510	4,470	3,150	9,200	1,720	2,380	5,130	1,910	2,470
10	8,840	5,690	7,540	3,340	4,450	4,250	7,110	1,890	1,840	7,900	1,930	2,310
11	6,700	4,890	6,940	3,130	4,540	6,650	4,940	1,960	1,720	4,000	1,880	2,270
12	6,080	4,830	6,410	3,040	4,170	12,600	7,940	1,670	1,600	3,150	1,770	2,310
13	4,960	4,810	5,850	3,610	4,130	27,300	6,300	1,620	1,640	2,560	1,570	1,880
14	4,450	4,580	5,530	3,910	4,050	36,500	9,030	1,670	1,690	2,160	1,440	1,770
15	4,250	4,560	5,350	4,250	3,850	52,900	7,510	1,890	1,600	2,040	1,760	2,020
16	3,890	5,460	5,240	5,530	3,650	60,100	6,330	2,070	1,670	1,710	1,600	1,980
17	3,530	6,170	4,890	15,900	3,480	65,800	7,220	2,070	1,590	1,550	1,760	2,050
18	3,850	17,400	4,750	26,800	3,610	52,200	9,860	1,930	1,570	1,510	1,740	2,160
19	3,910	28,900	4,470	23,500	3,420	31,000	19,300	1,820	1,400	1,540	1,710	2,230
20	3,850	26,900	4,330	20,100	3,320	21,000	21,100	2,020	1,540	2,950	1,570	2,220
21	5,350	16,700	4,190	14,900	3,290	15,500	20,900	1,890	1,470	3,940	1,600	2,090
22	29,200	14,800	4,130	11,500	3,460	12,100	8,900	2,320	1,400	3,190	1,600	2,000
23	25,000	13,600	4,110	10,000	4,330	8,900	7,460	2,680	1,570	4,980	1,570	1,660
24	18,200	12,000	3,930	9,600	4,250	7,180	7,320	2,040	1,430	3,670	1,710	3,190
25	15,100	11,300	3,690	10,400	5,040	6,950	6,810	1,860	1,380	2,950	1,720	3,390
26	10,100	9,730	3,510	9,110	6,340	6,720	4,400	1,840	1,250	3,050	1,710	3,790
27	8,100	8,840	3,500	8,050	5,990	6,540	4,100	1,930	1,270	2,600	1,510	3,590
28	7,040	7,640	3,460	7,580	4,500	6,510	3,640	1,770	1,280	2,360	1,720	4,060
29	6,700	....	3,340	7,740	4,250	6,400	3,170	1,600	1,220	2,130	1,710	4,120
30	6,560	....	3,500	7,580	3,690	5,990	2,850	1,410	1,070	2,250	1,880	4,250
31	6,410	....	3,320	....	3,320	....	2,700	1,670	....	2,130	....	4,500
1911												
1	6,900	30,300	4,280	10,300	6,440	2,260	1,590	900	17,700	1,260	2,900	4,910
2	18,000	19,000	4,080	10,000	5,990	2,080	1,540	900	11,400	1,180	2,710	4,700
3	22,000	15,000	4,080	8,790	5,770	1,830	1,420	1,140	9,280	1,080	2,530	4,280
4	49,400	11,400	3,880	9,030	5,550	1,830	1,290	1,060	6,670	1,320	2,440	3,680
5	36,700	9,780	3,680	15,900	5,120	2,440	1,390	1,040	5,550	1,540	2,260	3,880
6	23,000	7,590	3,680	32,200	5,120	3,090	1,260	1,020	4,490	1,340	2,260	3,480
7	19,600	7,130	3,880	28,200	4,910	2,710	1,260	1,920	4,700	1,390	3,480	3,280
8	13,000	7,130	5,120	23,300	4,700	2,900	2,900	1,670	2,260	1,360	5,550	3,280
9	8,310	6,900	9,780	22,000	4,700	3,280	5,120	1,670	1,830	1,390	13,800	3,090
10	7,830	8,310	8,790	19,000	4,700	3,280	3,880	1,320	1,830	1,490	9,780	2,900
11	5,990	7,130	10,600	16,500	4,490	3,280	2,260	1,360	1,830	1,830	7,360	2,710
12	5,330	7,830	12,200	14,700	4,280	2,900	2,080	1,290	2,350	1,640	6,440	2,530
13	5,120	9,280	13,800	13,000	4,080	2,440	1,830	1,230	2,170	1,670	5,550	2,710
14	4,910	8,070	11,900	10,800	3,880	2,350	2,440	1,360	2,170	1,830	5,330	2,710
15	4,700	7,130	10,600	10,600	3,680	2,170	2,170	1,340	1,830	1,670	4,910	2,710

Daily discharge, in second-feet, of James River at Cartersville, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	4,700	6,210	10,000	11,900	3,280	2,000	2,000	2,900	2,350	1,650	4,910	5,120
17	5,330	5,990	9,530	16,500	3,480	2,000	1,920	2,530	2,530	1,830	5,120	17,100
18	5,120	5,770	8,310	14,700	3,280	1,920	2,170	2,350	1,920	6,900	4,910	10,000
19	4,700	6,440	7,830	12,400	2,900	1,830	1,530	1,510	1,830	15,300	5,120	8,070
20	4,490	5,120	6,900	13,000	2,710	1,830	1,450	1,480	1,830	21,600	5,120	5,990
21	4,280	4,910	7,360	12,200	2,710	1,920	1,480	1,480	2,170	10,300	5,120	5,550
22	4,490	5,770	8,310	11,600	2,530	1,830	1,180	1,230	1,830	9,780	5,550	5,770
23	5,330	5,550	8,310	11,400	2,260	1,750	1,220	900	1,920	8,310	5,120	17,100
24	7,130	5,330	7,830	10,300	2,530	1,640	1,080	960	1,830	7,130	4,910	19,600
25	10,300	4,910	6,670	9,280	2,350	2,170	1,020	930	1,640	5,550	4,700	23,000
26	9,030	4,700	6,440	8,310	2,260	2,900	1,230	1,230	1,370	4,910	4,490	18,000
27	8,070	4,490	7,130	7,590	2,170	2,530	1,040	1,260	1,420	4,280	4,280	17,400
28	6,900	4,280	8,310	7,130	2,170	2,000	1,000	1,290	1,360	3,880	5,120	15,900
29	6,670	....	8,790	6,670	2,080	1,830	1,060	1,510	1,320	3,480	7,830	14,700
30	6,900	....	9,780	6,670	2,000	1,640	1,020	2,000	1,320	3,090	5,990	12,400
31	11,400	....	9,280	....	2,000	....	1,080	3,880	....	2,900	....	12,000
1912												
1	13,300	10,800	18,000	25,100	7,580	5,310	5,750	1,740	980	4,460	1,740	2,090
2	12,400	11,400	13,000	22,300	7,340	5,090	5,530	1,740	965	3,230	1,660	2,180
3	13,300	8,540	11,100	20,900	6,420	4,460	4,250	1,820	905	2,830	1,740	2,090
4	10,800	8,060	9,280	23,700	6,190	4,460	4,460	1,910	890	2,450	1,740	2,450
5	9,030	6,880	8,300	19,600	5,970	4,250	4,250	1,910	920	2,360	1,740	2,830
6	7,110	6,420	8,060	16,500	5,970	3,830	4,040	1,660	965	2,270	1,660	3,230
7	6,880	6,190	8,300	15,000	6,650	4,670	3,630	1,570	950	2,090	1,910	3,430
8	5,970	5,970	9,280	13,000	7,580	4,880	3,230	1,570	1,070	1,820	27,800	3,230
9	5,090	5,090	10,600	11,600	8,060	4,460	3,830	1,470	1,660	1,740	14,700	2,830
10	4,880	4,670	13,000	10,600	6,880	3,430	3,030	1,430	1,540	1,740	13,300	2,640
11	5,090	4,250	10,800	9,530	7,110	3,430	2,830	1,540	1,440	1,660	8,060	2,830
12	5,090	4,460	12,700	8,780	39,700	3,030	3,030	1,570	1,160	1,570	6,190	2,830
13	5,970	4,460	33,700	8,540	72,700	2,640	2,830	1,440	1,080	1,570	4,880	2,830
14	8,060	4,040	29,300	8,780	57,200	2,450	2,830	1,470	1,010	1,820	4,460	2,640
15	12,200	3,830	41,700	8,780	32,200	2,450	2,830	1,440	920	1,910	4,460	2,450
16	12,900	4,040	72,700	8,540	32,200	2,360	3,830	1,440	860	2,000	4,250	2,270
17	12,400	4,250	61,700	8,540	42,500	4,670	3,630	1,910	890	1,910	4,040	2,270
18	12,400	5,090	38,600	8,540	40,100	4,460	2,830	2,270	1,010	1,570	3,430	2,450
19	13,500	7,580	23,700	11,900	27,800	4,250	3,230	2,450	1,660	1,820	3,230	2,450
20	13,500	7,340	18,300	9,280	19,300	4,040	3,830	1,470	3,030	1,820	3,230	3,030
21	13,800	7,820	15,600	8,780	14,700	3,030	3,630	1,380	1,910	1,910	2,640	2,640
22	13,500	20,300	14,400	8,540	12,700	3,030	3,230	1,310	1,740	2,000	2,450	2,270
23	11,900	21,300	13,300	8,540	12,400	3,430	1,910	1,280	1,660	2,090	2,450	1,910
24	8,540	26,100	21,300	8,060	9,530	4,040	1,910	1,280	29,600	2,360	2,270	2,270
25	7,340	21,600	26,100	7,110	8,780	3,430	2,270	1,160	35,500	2,360	2,270	2,450
26	6,420	15,600	31,400	6,650	8,060	3,230	2,450	1,100	12,200	2,180	2,180	2,360
27	6,420	35,200	31,100	6,190	7,340	3,230	2,830	1,010	8,540	2,000	2,270	2,640
28	6,190	26,400	23,700	6,420	6,650	5,970	2,270	935	8,540	1,740	2,270	2,830
29	6,190	24,700	42,500	6,880	5,970	5,310	1,660	995	7,820	1,820	2,270	2,830
30	8,060	....	64,500	7,340	5,750	5,090	1,660	1,020	4,460	1,740	2,090	4,250
31	10,600	....	49,800	......	6,190	....	1,740	1,010	....	1,740	....	8,780
1913												
1	12,200	8,060	8,780	19,300	5,970	33,700	4,880	2,640	1,910	2,090	4,670	4,040
2	16,500	7,340	9,780	13,300	5,310	13,000	4,250	2,360	1,740	2,830	4,460	4,880
3	11,900	6,420	9,280	10,800	5,090	10,600	4,040	2,450	1,740	2,000	3,630	6,650
4	11,100	7,580	8,060	9,530	4,880	11,900	3,830	3,430	2,270	1,820	3,430	7,580
5	10,000	7,340	6,420	8,300	4,670	10,800	6,420	3,030	2,090	1,740	3,230	8,540
6	9,780	5,970	5,750	7,820	4,460	10,600	8,780	2,640	2,000	1,660	3,030	7,580
7	8,540	5,750	5,310	7,110	4,250	8,780	6,420	3,630	1,820	1,660	2,830	7,110
8	7,110	5,530	4,880	6,650	4,250	17,100	4,250	2,090	1,740	1,570	2,830	5,970
9	6,650	5,530	4,670	5,970	4,250	9,780	3,830	2,000	1,570	1,820	5,530	5,750
10	9,780	5,310	4,250	5,750	4,040	8,060	3,430	2,640	1,380	2,090	38,600	5,750

Daily discharge, in second-feet, of James River at Cartersville, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	9,030	7,580	5,750	5,310	4,040	6,420	6,650	4,040	1,490	3,430	26,400	5,530
12	8,060	5,090	6,880	11,100	3,830	5,970	3,630	3,830	1,430	2,830	16,500	5,310
13	7,110	4,670	9,780	57,200	3,630	5,530	4,040	2,450	1,410	2,450	13,800	5,090
14	6,650	4,250	34,800	48,600	3,630	5,190	5,090	4,880	1,440	2,640	8,300	4,880
15	5,530	4,040	64,200	39,000	3,430	4,880	3,830	5,090	1,470	2,640	7,340	4,460
16	5,310	3,830	61,200	36,700	3,430	4,460	3,830	4,880	1,380	2,540	5,970	4,250
17	4,880	3,630	42,100	31,400	3,830	3,830	3,430	3,830	1,220	2,270	10,600	4,250
18	4,880	3,230	25,100	24,700	4,670	3,430	3,630	3,230	1,140	2,180	10,800	4,040
19	4,670	3,230	18,300	19,600	4,460	3,230	3,230	3,030	1,570	2,090	10,300	3,830
20	4,250	3,430	14,400	16,800	3,630	[illegible]	[illegible]	10,600	1,660	2,830	9,280	3,630
21	4,040	3,430	12,400	13,500	3,630	3,030	3,230	6,190	1,740	4,460	7,820	3,430
22	3,830	3,430	11,000	11,100	3,830	3,030	3,530	5,530	5,750	4,250	7,580	3,430
23	3,830	3,230	10,000	10,000	5,310	4,250	3,780	4,040	5,530	4,040	7,110	3,430
24	3,830	3,230	8,540	8,780	40,800	7,820	4,040	4,460	4,460	5,310	5,530	5,310
25	4,250	3,030	7,820	8,060	47,800	8,540	4,040	5,770	2,830	10,800	5,090	6,190
26	4,040	3,230	7,340	7,580	32,900	7,820	3,230	3,430	2,640	12,400	4,460	13,300
27	4,250	3,430	7,820	7,110	25,000	5,970	3,030	3,230	2,270	10,000	4,250	13,000
28	9,780	5,310	28,900	6,880	26,400	5,750	2,450	3,030	2,000	9,780	4,250	12,700
29	10,800	....	74,000	6,420	30,000	8,060	2,270	2,640	1,820	9,280	4,460	11,600
30	11,400	....	36,100	6,110	21,600	7,340	2,640	2,270	1,740	9,280	4,250	9,280
31	9,530	....	22,000	....	24,300	....	2,090	2,090	....	5,310	....	8,060
1914												
1	5,750	30,100	11,400	10,600	10,300	2,450	2,000	1,510	1,910	980	1,740	2,270
2	6,190	32,200	11,100	10,000	8,060	2,450	1,740	1,470	1,660	830	1,660	2,640
3	6,650	23,700	9,280	9,780	7,580	2,640	2,270	1,540	1,380	815	1,660	9,030
4	27,800	16,500	9,780	9,530	7,340	2,450	2,000	1,470	1,250	890	1,660	8,300
5	24,400	13,800	9,280	9,530	6,880	2,360	3,030	1,510	1,220	1,080	1,540	7,340
6	15,900	12,400	9,280	9,280	7,110	2,360	4,040	1,570	1,130	1,470	1,510	22,000
7	12,200	17,600	9,780	9,030	6,880	2,450	4,040	1,510	1,100	1,570	1,430	32,200
8	11,400	19,000	9,780	8,540	7,110	2,450	3,230	1,280	1,040	1,510	1,430	20,000
9	9,030	21,000	10,000	8,780	7,340	2,270	3,030	1,330	995	1,300	1,490	13,800
10	8,540	19,000	9,280	8,060	6,650	2,450	2,640	1,120	950	1,740	1,570	10,800
11	9,030	14,100	9,280	7,580	6,190	2,360	2,180	1,070	920	1,570	1,570	9,280
12	12,200	13,000	9,530	7,340	5,970	2,270	2,180	1,250	1,040	1,510	1,740	8,540
13	12,700	13,000	9,780	7,110	5,970	2,180	2,450	1,510	1,130	1,470	1,540	7,820
14	11,100	9,280	10,800	6,880	5,750	2,270	2,830	1,460	1,130	1,470	1,510	9,280
15	8,540	8,780	10,300	7,340	5,530	2,180	3,030	1,660	995	3,630	2,640	8,300
16	7,580	8,540	11,100	14,700	4,880	2,270	4,460	1,440	950	4,670	11,900	6,420
17	7,110	7,820	11,400	13,800	4,460	2,180	4,250	1,380	1,020	13,500	8,300	5,310
18	6,420	8,300	14,100	15,300	4,250	2,270	4,040	1,120	1,070	9,780	6,190	4,880
19	6,420	11,400	25,400	14,100	4,040	2,270	3,630	1,040	1,040	8,060	4,670	4,880
20	5,970	23,000	24,000	11,600	4,040	1,660	2,830	1,160	1,010	4,460	4,040	7,340
21	5,750	30,000	18,000	11,400	3,830	1,570	2,450	1,040	1,190	4,040	3,430	11,100
22	5,310	25,400	16,200	11,600	3,830	3,830	1,820	1,040	1,280	2,830	3,030	16,200
23	5,750	20,600	14,100	11,600	3,630	2,180	1,660	1,190	1,220	2,270	2,450	16,500
24	6,420	18,600	13,500	10,300	3,430	2,000	1,520	1,470	1,160	2,180	2,450	15,600
25	18,000	15,900	13,300	9,030	3,230	1,820	1,570	1,510	1,190	2,180	2,270	11,400
26	12,700	15,600	10,800	9,030	3,030	2,270	1,520	1,310	1,190	2,090	2,180	10,600
27	17,100	13,800	10,300	10,300	3,230	2,640	1,520	2,090	1,180	2,090	2,090	8,780
28	12,200	11,900	9,780	12,400	3,030	3,030	1,390	2,450	1,220	1,740	2,000	6,650
29	10,800	....	9,530	14,700	2,640	3,230	1,360	2,360	1,160	1,740	2,090	7,110
30	9,030	....	9,280	11,400	2,640	2,270	1,520	2,180	1,020	1,740	2,000	9,280
31	10,600	....	8,540	....	2,450	....	1,660	2,000	....	1,740	....	13,000

Monthly discharge of James River at Cartersville, Va., for 1899–1914.

[Drainage area, 6,230 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1899						
January	64,000	6,486	13,550	2.17	2.50	
February	49,850	5,990	22,400	3.59	3.74	
March	93,750	10,950	28,610	4.59	5.29	
April	24,180	5,660	9,753	1.56	1.74	
May	16,770	3,580	7,304	1.17	1.35	
June	6,601	2,350	3,799	.610	.681	
July	4,080	1,200	2,030	.326	.376	
August	15,860	1,140	3,227	.518	.598	
September	11,350	1,432	3,187	.511	.570	
October	3,580	1,622	1,968	.316	.364	
November	11,080	2,000	3,566	.572	.638	
December	5,880	1,670	3,020	.485	.559	
The year	93,750	1,140	8,534	1.37	18.40	
1900						
January	36,970	1,060	8,929	1.43	1.65	
February	33,670	2,530	12,590	2.02	2.10	
March	47,160	6,440	14,810	2.38	2.74	
April	29,800	4,490	10,560	1.69	1.89	
May	8,790	3,380	5,096	.818	.943	
June	27,850	2,805	8,072	1.30	1.45	
July	5,120	1,782	2,828	.454	.523	
August	2,995	1,095	1,599	.257	.296	
September	9,280	842	2,498	.401	.447	
October	28,690	1,417	3,860	.619	.713	
November	57,200	2,034	7,109	1.14	1.27	
December	29,980	3,480	8,348	1.34	1.54	
The year	57,200	842	7,192	1.15	15.56	
1901						
January	43,380	2,900	8,770	1.41	1.63	
February	4,910	2,805	3,852	.618	.644	
March	29,260	2,530	8,241	1.32	1.52	
April	71,580	7,015	24,870	3.99	4.45	
May	92,200	5,267	18,630	2.99	3.45	
June	56,400	7,475	17,010	2.73	3.05	
July	16,770	3,147	7,858	1.26	1.45	
August	49,850	2,620	16,670	2.67	3.08	
September	25,750	3,480	6,972	1.12	1.25	
October	12,160	2,440	3,887	.624	.719	
November	9,530	2,170	2,946	.473	.528	
December	97,800	2,710	17,740	2.85	3.29	
The year	97,800	2,170	11,450	1.84	25.06	
1902						
January	59,690	4,952	12,860	2.06	2.38	
February	76,040	4,700	17,130	2.75	2.86	
March	82,290	7,590	22,830	3.66	4.22	
April	28,550	5,330	10,930	1.75	1.95	
May	6,670	3,280	5,578	.895	1.03	
June	41,900	2,000	4,425	.710	.792	
July	3,480	1,125	2,197	.353	.407	
August	8,430	1,125	2,488	.399	.460	
September	8,670	900	1,647	.264	.294	
October	52,180	1,670	7,328	1.18	1.36	
November	23,490	2,000	5,004	.802	.895	
December	30,710	5,660	12,940	2.08	2.40	
The year	82,290	900	8,780	1.41	19.05	

Monthly discharge of James River at Cartersville, Va., for 1899–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	48,810	5,120	14,890	2.39	2.76	
February	54,550	10,300	19,550	3.14	3.27	
March	60,340	9,780	23,260	3.73	4.30	
April	30,520	9,730	16,920	2.71	3.02	
May	11,080	4,040	6,367	1.02	1.18	
June	57,200	4,080	13,240	2.12	2.36	
July	15,320	2,404	6,063	.973	1.12	
August	33,480	2,404	5,396	.866	.998	
September	20,440	2,548	5,910	.948	1.06	
October	8,550	2,170	2,976	.478	.551	
November	3,128	2,051	2,443	.392	.437	
December	4,868	1,915	2,506	.402	.463	
The year	60,340	1,915	9,960	1.60	21.52	
1904						
January	11,890	2,085	3,660	.587	.677	
February	13,790	3,090	6,332	1.02	1.10	
March	36,670	5,225	10,060	1.61	1.86	
April	24,350	3,480	6,777	1.09	1.22	
May	27,680	5,594	9,334	1.50	1.73	
June	25,750	2,805	6,927	1.11	1.24	
July	4,595	1,670	2,935	.471	.543	
August	6,371	1,125	2,900	.465	.536	
September	7,360	1,170	1,828	.293	.327	
October	1,386	900	1,115	.179	.206	
November	2,440	1,125	1,470	.236	.263	
December	4,490	1,432	2,724	.437	.504	
The year	36,670	900	4,672	.750	10.21	
1905						
January	13,960	2,440	5,439	.873	1.01	
February	14,540	3,128	6,378	1.02	1.06	
March	33,300	6,394	11,900	1.91	2.20	
April	9,330	3,320	5,643	.905	1.01	
May	32,560	2,805	9,388	1.51	1.74	
June	16,770	2,085	5,309	.852	.951	
July	50,230	3,680	13,490	2.16	2.49	
August	20,940	2,957	6,086	.977	1.13	
September	17,700	1,864	4,024	.646	.721	
October	4,658	1,590	2,227	.357	.412	
November	2,530	1,702	1,967	.316	.353	
December	36,290	1,830	9,017	1.45	1.67	
The year	50,230	1,590	6,739	1.08	14.75	
1906						
January	52,800	6,170	13,800	2.22	2.56	
February	11,300	3,480	5,380	.863	.90	
March	27,500	3,920	12,700	2.04	2.35	
April	25,800	5,440	11,600	1.86	2.08	
May	9,660	3,000	4,910	.789	.91	
June	16,000	2,710	5,850	.939	1.05	
July	11,400	2,170	4,020	.645	.74	
August	23,400	2.900	10,600	1.70	1.96	
September	13,100	3,480	5,110	.820	.91	
October	84,800	5.160	20,800	3.34	3.85	
November	28,600	4,450	9,230	1.48	1.65	
December	19,600	3,880	6,750	1.08	1.24	
The year	84.800	2,170	9,230	1.48	20.20	

Monthly discharge of James River at Cartersville, Va., for 1899–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
January	18,000	5,550	10,100	1.62	1.87	A.
February	8,670	5,290	6,930	1.11	1.16	A.
March	17,500	5,880	10,700	1.72	1.98	A.
April	40,900	6,720	13,600	2.18	2.43	B.
May	25,400	4,530	8,720	1.40	1.61	B.
June	71,300	7,480	18,700	3.00	3.35	B.
July	6,530	2,530	4,000	.642	.74	A.
August	4,620	2,190	3,040	.488	.56	A.
September	61,700	2,080	7,280	1.17	1.30	B.
October	4,780	2,020	2,760	.443	.51	A.
November	28,200	2,210	8,130	1.30	1.45	B.
December	39,000	4,240	14.500	2.33	2.69	B.
The year	71,300	2,020	9,040	1.45	19.65	
1908						
January	63,300	6,750	16,900	2.71	3.12	B.
February	64,700	6,220	16,100	2.58	2.78	B.
March	27,300	8,310	13,100	2.10	2.42	B.
April	28,000	5,850	10,200	1.64	1.83	B.
May	23,500	5,690	11,900	1.91	2.20	A.
June	16,800	3,550	7,940	1.27	1.42	A.
July	10,200	1,810	4,080	.655	.76	A.
August	39,900	1,730	5,600	.899	1.04	A.
September	19,600	1,930	4,430	.711	.79	A.
October	20,300	1,960	4,560	.732	.84	A.
November	15,200	3,550	5,380	.864	.96	A.
December	17,700	3,060	6,480	1.04	1.20	A.
The year	64,700	1,730	8,890	1.43	19.36	
1909						
January	33,700	7,710	15,500	2.49	2.87	B.
February	30,200	5,970	14,000	2.25	2.34	B.
March	21,800	6,680	11,500	1.85	2.13	A.
April	47,300	5,280	11,700	1.88	2.10	B.
May	31,400	4,770	11,900	1.91	2.20	B.
June	23,400	4,980	10,400	1.67	1.86	A.
July	6,150	1,960	3,660	.587	.68	A.
August	5,060	1,570	2,460	.395	.46	A.
September	4,680	1,330	2,070	.332	.37	A.
October	5,240	1,370	2,110	.339	.39	A.
November	1,890	1,610	1,770	.284	.32	A.
December	13,400	1,570	3,490	.560	.65	B.
The year	47,300	1,330	7,550	1.21	16.37	
1910						
January	29,200	2,040	7.450	1.20	1.38	A.
February	28,900	4,560	9,430	1.51	1.57	A.
March	23,600	3,320	7,690	1.23	1.42	A.
April	26,800	3,040	8,060	1.29	1.44	A.
May	7,360	3,290	4,500	.722	.83	A.
June	65,800	2,580	16,000	2.57	2.87	B.
July	21,100	2,700	7,490	1.20	1.38	A.
August	3,010	1,410	2,000	.321	.37	A.
September	3,030	1,070	1,770	.284	.32	A.
October	7,960	1,080	2,580	.414	.48	A.
November	2,790	1,440	1,830	.294	.33	A.
December	4,500	1,660	2,530	.406	.47	A.
The year	65,800	1,070	5,900	.947	12.86	

Monthly discharge of James River at Cartersville, Va., for 1899–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1911						
January	49,400	4,280	10,800	1.73	1.99	A.
February	30,300	4,280	8,270	1.33	1.38	A.
March	13,800	3,680	7,780	1.25	1.44	A.
April	32,200	6,670	13,500	2.17	2.42	A.
May	6,440	2,000	3,680	.591	.68	A.
June	3,280	1,640	2,290	.368	.41	A.
July	5,120	1,000	1,740	.279	.32	A.
August	3,880	900	1,510	.242	.28	A.
September	17,700	1,320	3,420	.549	.61	A.
October	21,600	1,080	4,290	.689	.79	A.
November	13,800	2,260	5,190	.833	.93	A.
December	23,000	2,530	8,340	1.34	1.54	A.
The year	49,400	900	5,880	.944	12.79	
1912						
January	13,800	4,880	9,290	1.49	1.72	A.
February	55,200	3,830	11,100	1.78	1.92	B.
March	72,700	8,060	25,300	4.06	4.68	C.
April	26,100	6,190	11,500	1.85	2.06	B.
May	72,700	5,750	17,400	2.79	3.22	C.
June	5,470	2,360	3,950	.634	.71	A.
July	5,750	1,660	3,200	.514	.59	A.
August	2,450	935	1,490	.239	.28	A.
September	35,500	860	4,530	.727	.81	B.
October	4,460	1,570	2,080	.334	.39	A.
November	27,800	1,660	4,580	.735	.82	B.
December	8,780	1,910	2,850	.457	.53	A.
The year	72,700	860	8,110	1.30	17.73	
1913						
January	16,500	3,830	7,520	1.21	1.40	A.
February	8,060	3,030	4,860	.780	.81	A.
March	74,600	4,250	18,700	3.00	3.46	B.
April	57,200	5,310	15,800	2.54	2.83	B.
May	49,800	3,430	11,400	1.83	2.11	B.
June	33,700	3,030	8,070	1.30	1.45	A.
July	8,780	2,090	4,010	.644	.74	A.
August	10,600	2,000	3,720	.597	.69	A.
September	5,770	1,220	2,120	.340	.38	A.
October	12,400	1,570	4,200	.674	.78	A.
November	38,600	2,830	8,210	1.32	1.47	A.
December	13,300	3,430	6,410	1.03	1.19	A.
The year	74,600	1,220	7,930	1.27	17.31	
1914						
January	27,800	5,310	10,600	1.70	1.96	A.
February	32,200	7,820	16,900	2.71	2.82	B.
March	25,400	8,540	11,900	1.91	2.20	A.
April	15,300	6,880	10,400	1.67	1.86	A.
May	10,300	2,450	5,200	.835	.96	A.
June	3,830	1,570	2,360	.379	.42	B.
July	4,460	1,360	2,510	.403	.46	B.
August	2,450	1,040	1,490	.239	.28	B.
September	1,910	920	1,160	.186	.21	B.
October	13,500	815	2,800	.449	.52	B.
November	11,900	1,430	2,790	.448	.50	B.
December	32,200	2,270	10,500	1.69	1.95	A.
The year	32,200	815	6,490	1.04	14.14	

NOTE.—Ice present but no corrections were applied to the computed discharge estimates for following periods: Dec. 30, 1899, to Jan. 12, 1900; Dec. 21-24, 1901; part of January, 1904; Dec. 21-23, 1904; latter part of January and during February, 1905; Dec. 7-16 and 18-21, 1910. The computed daily discharge Dec. 24-31, 1909, was reduced 10 per cent because of probable effect of ice.

COWPASTURE RIVER NEAR CLIFTON FORGE, VA.

Location.—At the iron highway bridge, 1½ miles above junction with Jackson River, and about 4 miles southeast of Clifton Forge.

Drainage area.—460 square miles.

Records available.—May 13, 1907, to August 8, 1908.

Gage.—Vertical staff on first pier from left bank.

Discharge measurements.—Made from the bridge.

Channel and control.—Banks may overflow, but all water will pass beneath the bridge. Bed is composed of rock.

Extremes of discharge.—Maximum stage recorded: 10.0 feet, June 14, 1907; discharge not computed. Minimum stage recorded: 1.0 foot, September and October, 1907; discharge, 148 second-feet.

Winter flow.—Discharge relation not affected by ice during winter of 1907-8.

Accuracy.—Results fair for low and medium stages. Rating curve not developed for high stages. Gage readings poor.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the United States Forest Service.

Discharge measurements of Cowpasture River near Clifton Forge, Va., in 1907.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
May 13....	R. J. Taylor.......	2.00	671	July 18...	R. G. Knight........	1.39	317
June 27....	R. G. Knight.......	1.89	608	July 25...	.....do	1.21	210

Daily gage height, in feet, of Cowpasture River near Clifton Forge, Va., for 1907–8.

[Florence Persinger, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	2.0	1.7	1.2	1.0	1.0	1.0	3.7
2	......	......	......	......	......	7.0	1.6	1.0	1.0	1.0	1.0	3.3
3	......	......	......	......	......	3.7	1.5	1.0	1.0	1.0	3.0	3.0
4	......	......	......	......	......	2.9	1.4	1.0	1.0	1.0	2.3	2.8
5	......	......	......	......	......	2.7	1.4	1.0	1.5	1.0	2.0	2.6
6	......	......	......	......	......	2.7	1.4	1.0	1.3	1.0	2.0	2.4
7	......	......	......	......	......	2.5	1.4	1.0	1.2	1.0	1.8	2.0
8	......	......	......	......	......	2.4	1.3	1.0	1.0	1.0	1.7	1.7
9	......	......	......	......	......	4.0	1.3	1.0	1.0	1.0	1.5	1.6
10	......	......	......	......	......	3.2	1.3	2.0	1.0	1.0	2.4	6.0
11	......	......	......	......	......	3.0	1.3	1.6	1.3	1.0	2.3	4.7
12	......	......	......	......	......	3.4	1.3	1.4	1.2	1.0	2.2	4.5
13	......	......	......	......	2.0	5.0	1.3	1.3	1.2	1.0	2.0	4.0
14	......	......	......	......	1.9	10.0	1.3	1.3	1.2	1.0	1.8	3.6
15	......	......	......	......	1.8	5.0	1.2	1.2	1.0	1.0	1.7	3.0
16	......	......	......	......	1.8	3.4	1.2	1.2	1.0	1.0	1.7	2.7
17	......	......	......	......	1.7	3.0	1.2	1.2	1.0	1.0	1.5	2.5
18	......	......	......	......	1.7	2.5	1.4	1.2	1.0	1.0	1.4	2.3
19	......	......	......	......	1.6	2.3	1.8	1.2	1.0	1.0	2.0	2.0
20	......	......	......	......	1.6	2.1	1.7	1.2	1.0	1.0	1.8	2.9
21	......	......	......	......	1.6	1.9	1.5	1.2	1.0	1.0	1.7	2.8
22	......	......	......	......	1.5	2.0	1.4	1.2	1.0	1.0	2.0	7.0
23	......	......	......	......	1.5	2.0	1.3	1.2	6.5	1.0	2.0	6.0
24	......	......	......	......	1.4	2.0	1.3	1.3	4.0	1.0	5.5	5.6
25	......	......	......	......	1.4	2.0	1.2	1.8	3.5	1.0	5.4	5.0
26	......	......	......	......	1.5	2.0	1.2	1.6	2.3	1.0	5.0	4.0
27	......	......	......	......	1.4	1.9	1.2	1.5	2.2	1.0	4.7	3.5
28	......	......	......	......	1.4	1.9	1.2	1.4	1.2	1.0	4.6	3.0
29	......	......	......	......	1.4	1.8	1.2	1.3	1.0	1.0	4.4	5.0
30	......	......	......	......	1.4	1.7	1.2	1.2	1.0	1.0	4.0	4.6
31	......	......	......	......	1.4	......	1.2	1.2	......	1.0	......	4.3
1908												
1	4.0	1.0	2.0	6.3	2.0	2.1	1.3	1.5	......	......	......	......
2	3.6	1.0	2.0	6.0	2.4	2.0	1.3	1.4	......	......	......	......
3	3.3	1.0	4.0	5.4	2.2	2.0	1.3	1.4	......	......	......	......
4	3.0	1.0	4.0	4.0	2.0	2.0	1.5	1.2	......	......	......	......
5	2.6	1.0	3.7	3.5	2.0	2.0	1.6	1.1	......	......	......	......
6	2.3	1.0	6.5	3.0	2.0	1.9	1.8	1.1	......	......	......	......
7	2.2	1.0	5.5	2.8	5.0	1.9	1.8	1.1	......	......	......	......
8	2.0	1.0	5.0	2.2	7.0	1.8	1.7	1.1	......	......	......	......
9	1.8	1.0	4.6	1.5	4.0	1.9	1.5	......	......	......	......	......
10	1.6	1.0	4.3	1.2	3.6	2.0	1.3	......	......	......	......	......
11	1.5	1.0	4.0	1.0	3.4	2.0	1.3	......	......	......	......	......
12	9.0	1.0	3.5	2.0	3.0	2.0	1.2	......	......	......	......	......
13	7.0	1.0	3.0	2.0	2.4	2.0	1.2	......	......	......	......	......
14	6.0	4.0	2.4	1.9	2.0	2.0	1.2	......	......	......	......	......
15	4.0	4.0	2.0	1.6	2.0	2.2	1.1	......	......	......	......	......
16	3.6	7.0	1.7	1.6	2.0	2.3	1.1	......	......	......	......	......
17	3.3	5.3	1.4	1.4	3.3	2.2	1.1	......	......	......	......	......
18	3.0	5.0	1.2	1.2	3.3	2.0	1.1	......	......	......	......	......
19	2.6	4.5	2.3	1.0	3.2	2.0	1.1	......	......	......	......	......
20	2.3	4.0	2.3	1.0	5.0	1.9	1.1	......	......	......	......	......
21	2.0	3.4	2.2	1.0	3.0	1.8	1.1	......	......	......	......	......
22	1.7	3.0	2.0	1.85	3.3	1.7	1.1	......	......	......	......	......
23	1.4	3.0	2.0	1.8	4.0	1.5	1.1	......	......	......	......	......
24	1.3	2.8	1.8	1.8	3.7	1.5	1.1	......	......	......	......	......
25	1.0	2.6	1.6	1.8	3.0	1.5	1.1	......	......	......	......	......

Daily gage height, in feet, of Cowpasture River near Clifton Forge, Va., for 1907–8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
26	1.0	2.5	1.5	1.7	2.7	1.5	1.1	....	....	....	....	....
27	1.0	2.5	1.3	1.7	2.5	1.5	1.1	....	....	....	....	....
28	1.0	2.4	1.3	1.6	2.3	1.4	1.3	....	....	....	....	....
29	1.0	2.3	1.2	1.6	2.1	1.4	2.3	....	....	....	....	....
30	1.0	....	1.0	1.6	2.1	1.4	2.0	....	....	....	....	....
31	1.0	....	5.5	....	2.1	....	1.8	....	....	....	....	....

Daily discharge, in second-feet, of Cowpasture River near Clifton Forge., Va., for 1907–8.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	....	....	....	....	....	674	472	221	148	148	148	....
2	....	....	....	....	....	....	414	148	148	148	148	....
3	....	....	....	....	....	....	360	148	148	148	....	....
4	....	....	....	....	....	....	310	148	148	148	915	....
5	....	....	....	....	....	....	310	148	360	148	674	....
6	....	....	....	....	....	....	310	148	264	148	674	1,000
7	....	....	....	....	....	1,100	310	148	221	148	534	674
8	....	....	....	....	....	1,000	264	148	148	148	472	472
9	....	....	....	....	....	....	264	148	148	148	360	414
10	....	....	....	....	....	....	264	674	148	148	1,000	....
11	....	....	....	....	....	....	264	414	264	148	915	....
12	....	....	....	....	....	....	264	310	221	148	830	....
13	....	....	....	....	674	....	264	264	221	148	674	....
14	....	....	....	....	601	....	264	264	221	148	534	....
15	....	....	....	....	534	....	221	221	148	148	472	....
16	....	....	....	....	534	....	221	221	148	148	472	....
17	....	....	....	....	472	....	221	221	148	148	360	1,100
18	....	....	....	....	472	1,100	310	221	148	148	310	915
19	....	....	....	....	414	915	534	221	148	148	674	674
20	....	....	....	....	414	750	472	221	148	148	534	....
21	....	....	....	....	414	601	360	221	148	148	472	....
22	....	....	....	....	360	674	310	221	148	148	674	....
23	....	....	....	....	360	674	264	221	....	148	674	....
24	....	....	....	....	310	674	264	264	....	148	....	....
25	....	....	....	....	310	674	221	534	....	148	....	....
26	....	....	....	....	360	674	221	414	915	148	....	....
27	....	....	....	....	310	601	221	360	830	148	....	....
28	....	....	....	....	310	601	221	310	221	148	....	....
29	....	....	....	....	310	534	221	264	148	148	....	....
30	....	....	....	....	310	472	221	221	148	148	....	....
31	....	....	....	....	310	....	221	221	....	148	....	....
1908												
1	....	148	674	....	674	750	264	360	....	....	....	....
2	....	148	674	....	1,000	674	264	310	....	....	....	....
3	....	148	....	....	830	674	264	310	....	....	....	....
4	....	148	....	....	674	674	360	221	....	....	....	....
5	....	148	....	....	674	674	414	182	....	....	....	....

Daily discharge, in second-feet, of Cowpasture River near Clifton Forge, Va., for 1907–8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
6	915	148			674	601	534	182				
7	830	148				601	534	182				
8	674	148		830		534	472	182				
9	534	148		360		601	360					
10	414	148		221		674	264					
11	360	148		148		674	264					
12		148		674		674	221					
13		148		674	1,000	674	221					
14			1,000	601	674	674	221					
15			674	414	674	830	182					
16			472	414	674	915	182					
17			310	310		830	182					
18			221	221		674	182					
19			915	148		674	182					
20	915		915	148		601	182					
21	674		830	148		534	182					
22	472		674	568		472	182					
23	310		674	534		360	182					
24	264		534	534		360	182					
25	148		414	534		360	182					
26	148	1,100	360	472		360	182					
27	148	1,100	264	472	1,100	360	182					
28	148	1,000	264	414	915	310	264					
29	148	915	221	414	750	310	915					
30	148		148	414	750	310	674					
31	148				750		534					

NOTE.—Daily discharges for 1907 and 1908 are based on a well-defined rating curve. The discharge was greater than 1,200 second-feet for all missing days from May 13, 1907, to August 8, 1908.

ROANOKE RIVER BASIN.

ROANOKE RIVER AT ROANOKE, VA.

Location.—At Walnut Street highway bridge in Roanoke.

Drainage area.—388 square miles.

Records available.—July 10, 1896, to July 15, 1906; May 7, 1907, to December 31, 1914.

Gage.—Chain on downstream side of Walnut Street bridge; read once daily. Wire gage used previous to November 28, 1903.

Discharge measurements.—Made from downstream side of Walnut Street bridge or from Jefferson Street bridge about one-third mile above. Measurement of overflow from Crystal Spring, which enters river between the two bridges, added when discharge measurements are made at Jefferson Street bridge.

Channel and control.—Bed composed of coarse gravel and small bowlders. Both banks may overflow at extreme flood stages. Control, loose bowlders; shifts slightly.

Extremes of discharge.—Maximum stage recorded: 14.34 feet, August 6, 1901; discharge, 16,860 second-feet. Minimum stage recorded, 0.0 on morning of December 23, 1909, when flow was retarded by freezing; reported that practically no water was flowing.

Winter flow.—Ice seldom forms at station, but flow is sometimes retarded by freezing of headwaters.

Accuracy.—Frequent measurements necessary to adequately define rating curve at low stages. Rating curves at high stages not well defined, and estimates of discharge only fair except for periods during which frequent measurements were made.

Coöperation.—Records collected in coöperation by United States Geological Survey and Roanoke Railway & Electric Co., J. W. Hancock, general manager.

Discharge measurements of Roanoke River at Roanoke, Va., for 1906–1915.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1906				1911			
June 10....	Robert Follansbee..	0.76	119	July 27...	J. G. Mathers......	0.68	82.5
				July 27...	Mathers and Dean..	.69	79.8
1907				July 28...	.....do	.71	88.9
May 7.....	R. J. Taylor.......	2.65	1330				
June 22....	R. G. Knight.......	1.48	430	1912			
July 20....	.....do	1.12	319	Nov. 22..	Jackson and Batchelder	.88	132
July 24....	.....do	.88	187				
				Nov. 22..	.....do	.86	131
1909							
July 22....	G. C. Stevens......	.90	136	1914			
July 23....	.....do	1.00[a]	151[b]	Oct. 3....	J. G. Mathers.......	.60	62.5
Sept. 10...	Stevens and Thomas	1.29	274	Oct. 3....	.....do	.62	71.3
1910				1915			
Sept. 6....	G. C. Stevens......	1.24	278	June 24...	H. J. Dean..........	.88	144

[a] Staff gage at Jefferson Street Bridge.

[b] Includes 1.5 second-feet from Crystal Spring.

Daily gage height, in feet, of Roanoke River at Roanoke, Va., for 1906–1914.

[C. C. Hogshead, W. J. Lambert, and M. A. Turner, observers.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	1.35	1.8	1.0	2.3	1.35	1.1	0.8
2	1.3	1.7	1.1	2.05	1.3	1.0	.8
3	4.8	1.6	1.15	1.75	1.3	.9	.75
4	3.6	1.5	1.7	1.65	1.2	.7	.75
5	2.8	1.5	1.5	1.55	1.1	.8	.7
6	2.15	1.5	1.4	1.5	1.2	.8	.7
7	1.85	1.4	1.3	1.45	1.3	.8	.7
8	1.75	1.4	1.3	1.4	1.3	.8	.7
9	1.65	1.35	1.3	1.4	1.3	.7	.7
10	1.5	1.3	1.2	1.7	1.1	.8	.7
11	1.5	1.2	1.2	1.6	1.1	.8	.7
12	1.5	1.2	1.2	1.55	1.1	.8	.65
13	1.4	1.2	1.2	1.4	1.0	1.4	.65
14	1.4	1.2	1.15	1.4	1.0	1.3	.65
15	1.5	1.2	1.4	1.8	.9	1.2	.7
16	1.5	1.2	1.5	2.0	1.0	1.1	....
17	1.5	1.2	2.0	1.85	1.0	1.0	....
18	1.45	1.1	2.1	1.7	1.0	1.0	....
19	1.4	1.1	2.2	1.6	1.0	.9	....
20	1.35	1.1	2.2	1.5	.9	.8	....
21	1.3	1.1	2.2	1.4	1.4	1.1	....
22	1.3	1.05	2.1	1.6	1.3	1.0	....
23	4.05	1.05	2.0	1.5	1.4	.9	....
24	2.7	1.05	1.8	1.4	1.4	.8	....
25	2.2	1.05	1.7	1.3	1.2	.8	....
26	2.05	1.05	1.6	1.3	1.1	.8	....
27	1.85	1.1	2.15	1.2	1.0	.8	....
28	1.3	1.0	2.2	1.15	1.0	.8	....
29	2.2	....	2.1	1.5	1.0	.8	....
30	2.0	....	2.05	1.4	.9	.8	....
31	1.9	....	2.0	....	1.1	....	....

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1					....	1.85	1.65	0.85	0.8	0.95	0.8	1.4
2					....	2.65	1.4	.85	.8	.95	.9	1.3
3					....	2.4	1.3	.85	.8	.9	.9	1.2
4					....	2.1	1.25	.85	.85	.85	.9	1.1
5					....	1.9	1.1	.85	.8	.85	.9	1.1
6					....	1.85	1.2	.9	.75	.85	.9	1.1
7					2.65	1.75	1.15	.9	.7	.85	.8	1.1
8					2.4	1.6	1.05	.9	.7	.8	.8	1.05
9					2.2	1.5	1.0	.9	.7	.8	.8	1.05
10					2.0	1.5	.9	.9	.75	.8	.8	1.05
11					1.9	1.45	1.0	.9	.75	.8	.8	1.05
12					1.75	2.3	1.0	.9	.8	.8	.8	1.05
13					1.7	4.3	1.0	.9	.8	.8	.8	1.05
14					1.65	3.1	1.0	.9	.8	.8	.95	1.05
15					1.6	2.4	.9	.9	.8	.8	.9	1.8
16					1.5	2.1	1.0	.9	.8	.8	.8	1.9
17					1.45	2.0	1.0	.9	.8	.8	.8	1.8
18					1.4	1.85	1.0	.85	.8	.8	.8	1.75
19					1.3	1.75	1.0	.85	.9	.8	.8	1.7
20					1.3	1.55	.95	.8	1.05	.8	.9	1.6

Daily gage height, in feet, of Roanoke River at Roanoke, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
21	......	......	......	......	1.3	1.5	.95	.8	.85	.8	.9	1.6
22	......	......	......	......	1.25	1.45	.9	.8	.9	.8	.9	1.8
23	......	......	......	......	1.2	1.4	.9	1.0	6.7	.8	1.4	2.5
24	......	......	......	......	1.2	1.4	.9	1.05	2.3	.8	2.7	2.6
25	......	......	......	......	1.2	2.0	.9	.95	1.9	.8	2.4	2.5
26	......	......	......	......	1.2	1.55	.9	.9	1.8	.8	2.5	2.05
27	......	......	......	......	1.2	1.5	.9	.9	1.45	.8	2.4	2.3
28	......	......	......	......	1.2	1.45	.9	.8	1.3	.9	2.3	2.4
29	......	......	......	......	1.05	1.4	.9	.8	1.2	.9	2.1	2.6
30	......	......	......	......	1.05	1.7	.85	.8	1.1	.9	1.8	2.8
31	......	......	......	......	1.05	......	.85	.8	......	.9	......	2.95
1908												
1	2.90	0.90	1.70	1.80	1.65	1.25	1.30	.95	1.00	.90	2.10	1.30
2	2.80	.90	1.70	1.80	1.48	1.15	1.20	.87	.97	.82	1.80	1.28
3	2.75	.90	1.75	1.60	1.40	1.12	1.18	.82	.93	.80	1.75	1.20
4	2.75	1.00	1.75	3.50	1.48	1.55	2.50	.85	.90	.80	1.65	1.15
5	2.60	1.05	1.60	2.15	1.37	2.65	1.95	.83	.90	.80	1.55	1.15
6	2.60	1.35	1.65	1.90	1.40	2.05	3.00	.90	3.00	.80	1.48	1.20
7	2.55	1.50	1.65	1.80	1.70	1.80	2.05	.87	1.85	.75	1.40	1.45
8	2.55	1.60	1.60	1.80	2.40	1.65	1.70	.87	1.90	.78	1.40	2.00
9	2.50	1.50	1.60	1.60	2.20	1.50	1.40	.92	1.40	.75	1.35	1.80
10	2.50	1.55	1.50	1.60	1.83	1.50	1.35	1.00	1.30	1.20	1.30	1.65
11	2.90	1.50	1.55	1.60	1.62	1.45	1.30	.90	1.20	2.00	1.35	1.50
12	8.80	1.60	1.50	1.50	1.53	2.95	1.18	.90	1.10	1.50	1.30	1.85
13	3.10	1.60	1.55	1.55	1.47	1.75	1.15	.85	1.05	1.25	1.30	1.95
14	2.90	1.70	1.55	1.50	1.35	1.65	1.10	.78	1.05	1.15	1.25	1.85
15	2.80	1.60	1.50	1.40	1.20	1.55	1.05	.80	1.00	1.10	1.30	1.70
16	2.75	1.60	1.60	1.50	1.35	1.45	1.00	.90	.95	1.00	1.30	1.60
17	2.60	1.70	1.65	1.55	1.28	1.30	1.00	1.05	.93	.98	1.35	1.50
18	2.50	1.60	1.65	1.40	1.23	1.25	.98	.95	.92	.98	1.55	1.48
19	2.35	1.75	1.70	1.40	1.60	1.18	.95	.93	.90	.95	2.50	1.45
20	2.05	1.70	1.60	1.40	1.65	1.16	.97	.85	.90	.90	2.20	1.40
21	1.75	1.80	1.70	1.20	1.85	1.25	.95	.82	.90	.90	2.00	1.35
22	1.75	1.85	1.70	1.30	2.00	1.30	1.00	.80	.90	.92	1.75	1.35
23	1.70	1.90	1.80	1.20	2.05	1.30	.98	1.05	.89	.97	1.65	1.45
24	1.60	1.80	1.80	1.10	1.90	1.23	1.65	.90	.87	6.70	1.55	1.45
25	1.50	1.70	1.70	1.30	1.73	1.17	1.10	1.05	.85	2.80	1.50	1.70
26	1.30	1.80	1.75	1.30	1.60	1.10	1.00	2.45	.85	2.20	1.48	2.70
27	1.20	1.70	1.70	1.30	1.50	1.15	1.00	1.55	.84	1.85	1.45	2.40
28	1.05	1.70	1.70	1.55	1.40	1.05	1.40	1.32	1.00	1.70	1.40	2.10
29	1.05	1.70	1.70	1.45	1.40	1.00	1.15	1.25	1.00	3.45	1.35	2.55
30	1.00	......	1.70	......	1.40	.98	1.10	1.15	.95	3.30	1.30	3.65
31	.90	......	1.80	......	1.30	......	1.00	1.05	......	2.55	......	3.20
1909												
1	3.0	1.4	2.0	1.48	3.0	1.85	1.4	1.0	0.8	0.8	0.85	0.8
2	2.5	1.4	2.1	1.48	2.6	1.75	1.3	1.65	.8	.8	.85	.8
3	2.2	1.45	2.15	1.45	2.3	1.65	1.25	1.5	.75	.7	.75	.8
4	2.0	1.45	2.1	1.4	2.0	2.3	1.1	1.35	.75	.8	.8	.8
5	3.05	1.45	2.05	1.35	1.85	2.05	1.1	1.05	.7	.8	.8	.8
6	3.05	1.4	2.2	1.32	1.75	1.95	1.2	2.25	.8	.65	.7	.8
7	2.5	1.4	2.25	1.3	1.65	1.85	2.0	2.25	.8	.75	.8	.8
8	2.3	1.38	2.2	1.27	1.6	1.6	1.4	1.7	.85	.75	.8	.95
9	2.0	1.45	2.1	1.25	1.5	2.1	1.3	1.45	.85	.65	.7	.9
10	1.9	3.1	2.05	1.22	1.8	1.8	1.25	1.05	1.45	.75	.8	.9
11	1.8	2.4	1.85	1.22	2.0	1.7	1.2	1.0	1.2	1.7	.8	.9
12	1.7	2.0	1.82	1.2	1.8	1.6	1.15	1.0	1.0	1.75	.7	.9
13	1.65	1.95	1.79	1.3	1.65	1.5	1.1	1.0	.8	1.7	.8	.9
14	1.55	1.8	1.75	7.5	1.55	1.45	1.1	1.05	.85	1.5	.8	1.5
15	1.65	1.75	1.65	3.5	1.5	1.4	1.05	1.4	.85	1.1	.7	1.2

Daily gage height, in feet, of Roanoke River at Roanoke, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
16	1.8	1.7	1.58	2.6	1.45	1.35	1.0	1.5	.8	1.0	.8	1.0
17	2.1	1.6	1.54	2.2	1.4	1.35	1.2	1.25	.9	.95	.8	.95
18	2.6	1.5	1.5	2.0	1.35	1.35	1.1	1.1	.9	.8	.7	.9
19	2.5	1.6	1.45	1.85	1.3	1.3	1.0	1.0	.8	.9	.8	.85
20	2.35	1.6	1.45	1.75	1.35	1.3	.95	.9	.9	.9	.8	.8
21	2.35	1.5	1.45	1.7	6.65	1.25	.95	.9	.9	.8	.7	.5
22	2.3	1.5	1.4	1.7	3.7	1.2	.9	.9	.8	.85	.8	.4
23	2.3	1.6	1.38	1.7	3.5	1.2	.93	.85	.9	.85	.8	.0
24	2.25	2.0	1.3	1.65	3.1	1.2	.9	.85	.85	.7	.7	.4
25	2.15	2.0	1.65	1.65	3.0	1.2	.8	.75	.75	.8	.8	.6
26	2.0	1.95	1.8	1.6	4.2	1.2	.85	.83	.83	.8	.8	.7
27	1.9	1.9	1.65	1.6	4.6	1.15	.95	.8	.83	.7	.7	.3
28	1.85	1.9	1.6	1.6	3.1	1.15	.9	.8	.7	.8	.8	.5
29	1.75	....	1.58	1.5	2.5	1.2	.9	.8	.8	.8	.8	.65
30	1.65	....	1.55	1.7	2.2	1.9	.9	.7	.8	.7	.7	.7
31	1.5	....	1.5	....	2.0	....	.95	.8	....	.8	....	.6
1910												
1	0.45	0.9	1.6	0.9	1.2	1.1	1.3	1.1	1.3	0.7	0.8	0.75
2	.6	1.1	2.85	.95	1.15	.95	1.35	1.05	1.25	.75	.8	.7
3	.9	1.2	2.1	.95	1.1	.9	1.25	1.05	1.35	.75	.75	.65
4	.9	1.4	2.0	1.1	1.15	.85	1.25	1.1	1.35	.7	.8	.7
5	.95	1.45	1.9	1.15	1.1	1.0	2.0	1.0	1.5	.75	.7	.75
6	.8	1.1	1.9	1.05	1.1	1.25	1.45	1.05	1.25	.7	.75	.9
7	1.3	1.35	1.85	1.1	1.1	1.0	1.85	.95	1.05	.85	.75	1.0
8	1.75	1.4	1.7	1.05	1.1	1.0	1.55	.95	1.05	1.25	.7	.85
9	1.5	1.3	1.6	.95	1.25	1.05	2.0	1.0	.95	1.65	.7	.9
10	1.25	1.25	1.6	1.0	1.15	1.25	1.9	.9	.95	1.2	.65	.85
11	1.15	1.1	1.5	.95	1.2	2.4	1.75	.95	.9	1.05	.7	.85
12	1.0	1.1	1.4	1.0	1.15	3.05	1.3	.9	.85	1.0	.7	.85
13	1.05	1.0	1.4	1.15	1.1	7.75	1.4	.9	.9	1.0	.65	.8
14	1.0	1.0	1.3	1.1	1.1	6.25	1.9	.9	.85	.85	.7	.85
15	.9	1.15	1.25	1.15	1.05	3.5	1.9	.85	.95	.9	.65	.8
16	.85	1.3	1.2	1.05	1.05	4.3	1.75	.9	.85	.85	.7	.75
17	.9	2.0	1.15	1.15	1.05	3.25	1.9	.8	.85	.85	.7	.75
18	.95	4.6	1.2	1.7	.95	2.7	4.25	.8	.85	.85	.65	.7
19	1.0	2.55	1.2	1.55	1.0	2.25	2.35	.9	.75	.8	.65	.8
20	1.0	1.95	1.15	1.55	.9	2.0	2.0	1.0	.8	.9	.6	.7
21	1.85	1.9	1.15	1.45	1.0	1.9	1.75	.9	.75	.85	.65	.4
22	2.1	1.9	1.1	1.5	1.0	2.1	1.5	.85	.75	.9	.7	.5
23	1.9	1.85	1.1	1.45	1.0	2.05	1.35	.8	.8	.9	.65	.7
24	1.6	1.8	1.1	1.35	1.15	1.95	1.35	.85	.75	.85	.7	.9
25	1.5	1.65	1.05	1.3	1.4	2.45	1.3	.8	.8	.9	.65	.95
26	1.25	1.65	1.0	1.25	1.25	2.0	1.25	.85	.8	.85	.7	.95
27	1.2	1.6	.95	1.25	1.25	1.55	1.2	.95	.8	.9	.7	.95
28	1.2	1.45	1.0	1.25	1.2	1.9	1.15	.9	.8	.9	.7	.85
29	1.1	....	.95	1.15	1.25	1.45	1.1	.95	.75	.8	.75	.9
30	1.0	....	.95	1.2	1.15	1.4	1.15	.85	....	.85	.7	1.2
31	.95	....	.95	....	1.15	....	1.05	1.0	....	.75	....	1.4
1911												
1	1.9	2.0	1.2	1.75	1.55	1.0	0.9	0.68	1.2	0.68	0.8	1.0
2	2.75	1.8	1.15	1.65	1.5	1.0	.9	.68	1.0	.68	.8	.9
3	2.9	1.6	1.15	1.65	1.35	1.0	.85	.68	.95	.68	.8	.9
4	3.2	1.45	1.1	2.5	1.3	1.0	.85	75	.85	.65	.8	.9
5	2.2	1.4	1.1	4.0	1.3	1.7	1.8	1.1	.8	.65	.8	.9
6	1.9	1.3	2.45	4.0	1.25	1.2	1.0	1.2	.75	.65	.8	.9
7	1.65	1.3	2.7	3.8	1.25	1.1	.9	.8	.75	.7	1.8	.9
8	1.5	1.3	2.2	3.3	1.25	1.7	2.4	.75	.7	.75	1.2	.9
9	1.4	1.3	2.0	2.7	1.25	1.3	1.6	.7	.7	.75	1.3	.9
10	1.35	2.6	3.1	2.5	1.25	1.2	1.2	.68	.7	.75	1.3	.75

Daily gage height, in feet, of Roanoke River at Roanoke, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
11	1.3	2.0	2.9	2.3	1.2	1.1	1.2	.68	.8	.85	1.4	.75
12	1.25	1.85	2.8	2.1	1.2	1.05	1.2	.68	1.0	.8	1.3	.75
13	1.15	1.75	2.6	2.3	1.15	1.0	1.2	.9	.9	.75	1.2	.75
14	1.1	1.6	2.2	2.65	1.15	1.0	1.2	.8	.9	.7	1.2	.75
15	1.05	1.5	2.1	2.5	1.1	1.2	1.0	.75	.85	.7	1.2	1.0
16	1.0	1.4	2.0	2.45	1.1	1.1	.95	.7	.85	.7	1.2	1.4
17	1.0	1.4	1.9	2.4	1.1	1.0	.9	.68	.8	.7	1.2	2.0
18	1.0	1.4	1.9	2.1	1.05	1.0	.9	.67	.75	3.75	1.2	1.7
19	1.0	1.4	1.8	2.0	1.05	1.0	.9	.65	.75	1.5	1.2	1.5
20	1.0	1.5	1.8	2.0	1.0	1.0	.85	.65	.75	1.2	1.2	1.4
21	1.0	1.5	1.8	1.95	1.0	.95	.85	.65	.7	1.1	1.2	1.3
22	1.0	1.45	1.7	1.85	1.0	.9	.8	.62	.7	1.1	1.1	1.3
23	2.0	1.4	1.55	1.8	1.0	.9	.75	.62	.75	1.2	1.1	2.9
24	1.9	1.4	1.5	1.7	1.0	.9	.75	.6	.75	1.1	1.1	2.9
25	1.8	1.35	1.4	1.65	1.0	.9	.75	.6	.7	1.05	1.1	2.9
26	1.5	1.3	1.4	1.55	.95	1.2	.7	.6	.7	1.0	1.0	2.9
27	1.4	1.25	1.6	1.5	.95	1.1	.7	.6	.7	1.0	1.0	3.0
28	1.4	1.2	1.6	1.5	.95	1.0	.7	.6	.68	.9	1.0	2.9
29	1.4	......	1.55	1.5	.95	.9	.7	.7	.68	.9	1.0	2.6
30	2.5	......	1.65	1.5	1.0	.9	.7	1.5	.68	.85	1.0	2.0
31	2.2	......	1.85	......	1.0	......	.7	1.2	......	.85	......	1.9
1912												
1	1.8	1.8	2.2	3.8	1.7	1.3	1.7	1.2	0.8	1.1	0.8	0.9
2	1.7	1.6	1.8	3.2	1.7	1.3	1.6	1.1	.8	1.1	.8	.9
3	1.6	1.4	1.8	2.9	1.7	1.2	1.5	1.1	.8	1.0	.8	.8
4	1.55	1.4	1.8	2.6	1.6	1.2	1.4	1.0	.8	1.0	.8	.9
5	1.4	1.2	1.8	2.4	1.5	1.2	1.6	1.0	.8	.95	.8	.9
6	1.3	1.2	1.7	2.3	1.4	1.2	1.4	1.0	.8	.9	.8	1.3
7	1.25	1.2	1.6	2.2	1.4	1.2	1.4	1.0	.8	.9	1.6	1.4
8	1.25	1.2	1.7	2.1	1.4	1.2	1.3	1.0	.8	.8	1.8	1.3
9	1.2	1.15	1.8	2.0	1.3	1.1	1.5	1.0	.8	.8	1.4	1.3
10	1.2	1.1	2.5	1.9	1.3	1.1	1.5	.95	.8	.8	1.3	1.2
11	1.2	1.1	2.2	1.8	1.3	1.1	1.8	.95	.8	.8	1.2	1.1
12	1.2	1.1	2.4	1.7	8.5	1.1	1.6	.95	.8	.8	1.2	1.1
13	1.2	1.1	4.5	1.6	4.4	1.1	1.4	.90	.8	.8	1.1	1.1
14	1.2	1.1	7.6	1.6	3.8	1.1	1.5	.90	.8	.8	1.1	1.1
15	1.2	1.1	5.5	1.5	4.0	1.1	1.3	.90	.8	.8	1.0	1.1
16	1.0	1.1	4.2	1.5	4.5	1.1	1.2	.90	.8	.8	1.0	1.1
17	1.1	1.1	3.1	1.5	5.0	1.1	1.1	.90	1.0	.8	1.0	1.0
18	1.2	1.1	2.9	1.4	4.0	1.1	1.1	.90	1.2	.8	1.0	1.0
19	1.4	1.1	2.4	1.4	3.0	1.1	1.4	.85	.9	.8	1.0	1.0
20	1.7	1.1	2.3	1.4	2.2	1.2	1.5	.85	.9	.8	1.0	1.0
21	1.5	1.2	2.0	1.4	2.0	1.1	1.7	.85	.85	.8	1.0	1.0
22	1.4	3.6	2.6	1.4	1.9	1.2	1.7	.85	.85	.8	.9	1.0
23	1.4	2.2	2.7	1.3	1.8	1.2	1.6	.90	.9	.8	.9	1.0
24	1.4	2.1	2.5	1.3	1.7	1.25	1.5	.90	1.1	.8	.9	1.0
25	1.3	2.2	2.4	1.3	1.6	1.7	1.5	.90	3.3	.8	.9	1.0
26	1.3	2.8	2.3	1.3	1.5	1.3	1.4	.85	2.2	.8	.9	1.0
27	1.2	4.2	2.2	1.2	1.5	2.6	1.4	.85	2.0	.8	.9	1.0
28	1.2	3.1	2.2	1.2	1.4	2.4	1.4	.85	1.8	.8	.9	1.0
29	1.2	2.8	7.2	1.3	1.4	1.7	1.3	.85	1.6	.8	.9	1.0
30	1.8	......	4.1	1.6	1.3	1.6	1.25	.85	1.3	.8	.9	1.1
31	2.1	......	4.0	......	1.3	......	1.2	.80	......	.8	......	1.7
1913												
1	1.5	1.4	2.1	1.8	1.1	1.6	1.2	0.8	0.7	0.7	0.9	1.0
2	1.4	1.4	1.9	1.7	1.0	1.5	1.1	.75	.65	.7	.9	2.0
3	1.4	1.4	1.7	1.6	1.0	1.4	1.9	.75	.65	.7	.9	1.7
4	1.4	1.4	1.5	1.5	1.0	1.4	2.8	.7	.7	.7	.85	1.5
5	1.5	1.4	1.4	1.5	1.0	1.3	2.5	.7	1.1	.7	.8	1.4

Daily gage height, in feet, of Roanoke River at Roanoke, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
6	1.4	1.3	1.3	1.4	1.0	1.3	1.8	.7	.9	.65	.8	1.3
7	1.3	1.2	1.2	1.3	1.0	1.2	1.5	.75	.7	.7	.8	1.3
8	1.2	1.1	1.2	1.3	1.0	1.6	1.3	.75	.6	.65	.8	1.4
9	1.1	1.1	1.2	1.3	1.0	1.5	1.2	.75	.7	.8	3.0	1.3
10	1.1	1.1	1.2	1.3	1.0	1.3	1.1	1.9	....	1.2	2.3	1.2
11	1.1	1.1	1.4	1.3	.9	1.2	1.2	1.7	....	1.2	1.8	1.2
12	1.0	1.1	1.3	1.6	.9	1.3	1.5	.9	....	1.1	1.5	1.1
13	1.2	1.0	1.3	2.6	.9	1.3	1.2	.9	....	1.1	1.5	1.1
14	1.1	1.0	7.7	2.1	.9	1.2	1.1	1.0	....	.9	1.3	1.0
15	1.0	1.0	4.0	1.9	.9	1.1	1.0	.9	....	.9	1.3	1.0
16	1.0	1.0	3.4	1.9	1.0	1.1	1.0	.9	....	.8	1.2	1.0
17	1.0	1.0	2.4	1.8	1.2	1.0	1.0	.7	....	.8	1.2	1.0
18	1.0	.9	2.2	1.7	1.2	1.0	.9	.7	....	.8	1.2	1.0
19	1.0	.9	1.9	1.6	1.0	1.0	.9	1.1	....	.85	1.2	1.0
20	.9	.9	1.8	1.6	.9	1.0	.9	1.2	....	1.3	1.1	.9
21	.9	1.0	1.7	1.5	1.0	.9	.9	1.1	....	1.7	1.1	.9
22	.9	1.0	1.6	1.4	1.1	1.0	.8	1.0	....	1.4	1.1	.9
23	.9	1.0	1.5	1.3	3.9	1.7	.8	.9	....	1.2	1.0	.9
24	.9	1.0	1.5	1.3	5.7	2.2	.8	.9	.9	1.2	1.0	1.0
25	.9	1.0	1.4	1.3	3.0	1.3	.75	.8	.9	1.4	1.0	1.0
26	.9	.9	1.4	1.2	2.4	1.2	.9	.7	.8	1.3	.9	2.3
27	1.0	1.6	3.4	1.2	2.0	1.6	.75	.7	.8	1.2	.9	1.8
28	2.5	2.9	3.5	1.2	2.8	1.4	.75	.7	.8	1.1	.9	1.7
29	1.9	....	2.4	1.2	2.2	1.8	1.1	.7	.7	1.1	.9	1.4
30	1.6	....	2.1	1.1	2.0	1.5	.9	.7	.7	1.0	.9	1.4
31	1.5	....	2.0	....	1.8	....	.8	.7	....	.9	....	1.3
1914												
1	1.3	2.5	1.9	2.7	1.3	0.9	0.7	....	0.8	0.6	0.7	2.5
2	1.2	2.1	1.7	2.6	1.3	.9	2.1	....	.6	.6	.7	2.7
3	1.2	1.9	1.7	2.3	1.3	.8	1.2	....	1.0	.6	.7	2.1
4	1.4	1.7	1.7	2.1	1.3	.8	.9	0.9	1.0	.6	.7	1.8
5	1.4	1.7	1.6	1.9	1.3	.8	.9	.7	.8	.9	.7	9.3
6	1.4	1.9	1.6	1.8	1.3	.9	.9	.8	.8	1.0	.7	3.7
7	1.5	3.3	1.6	1.7	1.3	.9	.9	.8	.7	.8	.7	2.9
8	1.5	2.7	1.6	1.7	1.3	.9	.9	.8	.6	.7	.7	2.5
9	2.0	2.3	1.6	1.9	1.3	.9	.8	....	.7	.8	.7	2.1
10	3.2	2.1	1.5	1.6	1.3	.9	2.1	....	.7	.8	.7	2.0
11	2.4	1.9	1.6	1.6	1.2	.8	1.1	.9	.7	.7	.7	2.0
12	2.2	1.8	2.5	1.5	1.2	.8	.9	.8	.6	.7	.7	1.8
13	1.8	1.7	2.6	1.5	1.1	.8	.9	.9	.8	.7	.7	1.7
14	1.6	1.5	2.3	1.5	1.1	.8	3.0	.8	.7	.8	.7	1.8
15	1.6	1.5	2.2	1.7	1.1	.8	1.9	.7	.6	.9	1.7	1.5
16	1.5	1.6	2.2	2.2	1.1	.8	1.8	.7	.7	2.7	1.1	1.4
17	1.5	1.3	2.2	2.0	1.1	.8	2.7	.7	.7	1.9	1.5	1.4
18	1.4	1.6	2.7	1.9	1.1	.7	2.7	.6	.6	1.4	1.2	1.4
19	1.4	2.7	2.6	1.8	1.0	.7	1.4	.7	.8	1.2	1.1	1.3
20	1.4	3.7	2.4	1.8	1.0	.7	1.1	.6	.9	1.1	1.0	2.0
21	1.7	3.4	2.2	1.8	1.0	.7	1.1	.6	.8	1.0	1.0	2.3
22	1.9	2.8	2.1	1.7	1.0	.7	1.0	.9	.6	.9	.9	2.9
23	1.7	2.6	2.0	1.6	1.0	.7	.9	.8	.7	.9	1.0	2.3
24	1.6	2.4	1.9	1.6	1.0	.7	.9	.7	.7	.8	.9	2.0
25	1.6	2.1	1.7	1.5	1.0	.7	.8	.5	.6	.9	.8	1.9
26	2.0	2.0	1.8	1.5	.9	.7	.8	1.0	.7	.8	.8	1.8
27	1.8	2.0	1.7	1.5	.9	.7	1.4	.9	.7	.8	.8	1.7
28	1.7	1.9	1.6	1.4	.9	.7	1.1	.8	.6	.8	.8	1.7
29	1.6	....	1.7	1.4	.9	.7	1.1	1.0	.7	.8	.8	1.7
30	1.4	....	1.7	1.3	.9	.7	.8	1.0	.7	.8	1.1	2.5
31	1.9	....	1.8	....	.9	....	.9	.9	....	.7	....	2.7

NOTE.—Discharge relation affected by ice at headwaters, which retarded the flow Dec. 21, 1909, to Jan. 2, 1910, and Dec. 21-22, 1910. Gage heights estimated from observer's notes June 27, 1912, and by the observer Nov. 19-21 and possibly other days in 1912. Gage was stolen Sept. 10 and replaced Sept. 24, 1913.

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for 1906–1914.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	335	590	186	960	335	224	122	......	......	......	......	......
2	310	530	224	763	310	186	122	......	......	......	......	......
3	3,985	470	244	560	310	152	109	......	......	......	......	......
4	2,390	415	530	500	264	96	109	......	......	......	......	......
5	1,440	415	415	443	224	122	96	......	......	......	......	......
6	840	415	360	415	264	122	96	......	......	......	......	......
7	622	360	510	388	310	122	96	......	......	......	......	......
8	560	360	310	360	310	122	96	......	......	......	......	......
9	500	335	310	360	310	96	96	......	......	......	......	......
10	415	310	264	530	224	122	96	......	......	......	......	......
11	415	264	264	470	224	122	96	......	......	......	......	......
12	415	264	264	443	224	122	85	......	......	......	......	......
13	360	264	264	360	186	360	85	......	......	......	......	......
14	360	264	244	360	186	310	85	......	......	......	......	......
15	415	264	360	590	152	264	96	......	......	......	......	......
16	415	264	415	725	186	224	......	......	......	......	......	......
17	415	264	725	622	186	186	......	......	......	......	......	......
18	388	224	800	530	186	186	......	......	......	......	......	......
19	360	224	880	470	186	152	......	......	......	......	......	......
20	335	224	880	415	152	122	......	......	......	......	......	......
21	310	224	880	360	360	224	......	......	......	......	......	......
22	310	205	800	470	310	186	......	......	......	......	......	......
23	2,972	205	725	415	360	152	......	......	......	......	......	......
24	1,340	205	590	360	360	122	......	......	......	......	......	......
25	880	205	530	310	264	122	......	......	......	......	......	......
26	763	205	470	310	224	122	......	......	......	......	......	......
27	622	224	840	264	186	122	......	......	......	......	......	......
28	310	186	880	244	186	122	......	......	......	......	......	......
29	880	......	800	415	186	122	......	......	......	......	......	......
30	725	......	763	360	152	122	......	......	......	......	......	......
31	655	......	725	......	224	......	......	......	......	......	......	......
1907												
1	......	......	......	......	......	665	539	178	162	213	162	404
2	......	......	......	......	......	1,320	404	178	162	213	195	357
3	......	......	......	......	......	1,090	357	178	162	195	195	313
4	......	......	......	......	......	840	335	178	178	178	195	271
5	......	......	......	......	......	700	271	178	162	178	195	271
6	......	......	......	......	......	665	313	195	147	178	195	271
7	......	......	......	......	1,320	599	292	195	132	178	162	271
8	......	......	......	......	1,090	510	251	195	132	162	162	251
9	......	......	......	......	920	455	231	195	132	162	162	251
10	......	......	......	......	770	455	195	195	147	162	162	251
11	......	......	......	......	700	430	231	195	147	162	162	251
12	......	......	......	......	599	1,000	231	195	162	162	162	251
13	......	......	......	......	568	3,310	231	195	162	162	162	251
14	......	......	......	......	539	1,790	231	195	162	162	213	251
15	......	......	......	......	510	1,090	195	195	162	162	195	630
16	......	......	......	......	455	840	231	195	162	162	162	700
17	......	......	......	......	430	770	231	195	162	162	162	630
18	......	......	......	......	404	665	231	178	162	162	162	599
19	......	......	......	......	357	599	231	178	195	162	162	568
20	......	......	......	......	357	482	213	162	251	162	195	510
21	......	......	......	......	357	455	213	162	178	162	195	510
22	......	......	......	......	335	430	195	162	195	162	195	630
23	......	......	......	......	313	404	195	231	6,550	162	404	1,180
24	......	......	......	......	313	404	195	251	1,000	162	1,370	1,270
25	......	......	......	......	313	770	195	213	700	162	1,090	1,180

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
26	......	......	......	......	313	482	195	195	630	162	1,180	805
27	......	......	......	......	313	455	195	195	430	162	1,090	1,000
28	......	......	......	......	313	430	195	162	357	195	1,000	1,090
29	......	......	......	......	251	404	195	162	313	195	840	1,270
30	......	......	......	......	251	568	178	162	271	195	630	1,470
31	......	......	......	......	251	......	178	162	......	195	......	1,620
1908												
1	1,550	152	530	590	500	287	310	169	186	152	800	310
2	1,440	152	530	590	404	244	264	143	176	128	590	301
3	1,390	152	560	470	360	232	256	128	162	122	560	264
4	1,390	186	560	2,260	404	442	1,140	137	152	122	500	244
5	1,240	205	470	840	345	1,290	690	131	152	122	442	244
6	1,240	385	530	655	360	762	1,660	152	1,660	122	404	264
7	1,190	415	500	590	530	590	762	143	622	109	360	388
8	1,190	470	470	590	1,050	500	530	143	655	117	360	725
9	1,140	415	470	470	880	415	360	159	360	109	335	590
10	1,140	442	415	470	610	415	335	186	310	264	310	500
11	1,550	415	442	470	482	388	310	152	264	725	335	415
12	9,380	470	415	415	432	1,600	256	152	224	415	310	622
13	1,780	470	442	442	398	560	244	137	205	287	310	690
14	1,550	530	442	415	335	500	224	117	205	244	287	622
15	1,440	470	415	360	264	442	205	122	186	224	310	530
16	1,390	470	470	415	335	388	186	152	169	186	310	470
17	1,240	530	500	442	301	310	186	205	162	179	335	415
18	1,140	470	500	360	278	287	179	169	159	179	442	404
19	1,000	560	530	360	470	256	169	162	152	169	1,140	388
20	762	530	470	360	500	218	176	137	152	152	880	360
21	560	590	530	264	622	287	169	128	152	152	725	335
22	560	622	530	310	725	310	186	122	152	159	560	335
23	530	655	590	264	762	310	179	205	149	176	500	388
24	470	590	590	224	655	278	500	152	143	6,550	442	388
25	415	530	530	310	548	252	224	205	137	1,440	415	530
26	310	590	560	310	470	224	186	1,100	137	880	404	1,340
27	264	530	530	310	415	244	186	442	134	622	388	1,050
28	205	530	530	442	360	205	360	320	186	530	360	800
29	205	530	530	388	360	186	244	287	186	2,200	335	1,190
30	186	......	530	444	360	179	224	244	169	2,020	310	2,450
31	152	......	590	......	310	......	186	205	......	1,190	......	1,900
1909												
1	1,660	326	690	366	1,660	585	326	166	110	110	123	110
2	1,130	326	770	366	1,230	519	279	459	110	110	123	110
3	850	351	810	351	940	459	258	376	98	86	98	110
4	690	351	770	326	690	940	200	302	98	110	110	110
5	1,720	351	730	302	585	730	200	183	86	110	110	110
6	1,720	326	850	288	519	655	237	895	110	75	86	110
7	1,130	326	895	279	459	585	690	894	110	98	110	110
8	940	317	850	266	430	430	326	488	123	98	110	151
9	690	351	770	258	376	770	279	351	123	75	86	136
10	620	1,780	730	245	550	550	258	183	351	98	110	136
11	550	1,030	585	245	690	488	237	166	237	488	110	136
12	488	690	564	237	550	430	218	166	166	519	86	136
13	459	655	544	279	459	376	200	166	110	488	110	136
14	403	550	519	7,630	403	351	200	183	123	376	110	376
15	459	519	459	2,260	376	326	183	326	123	200	86	237
16	550	488	419	1,230	351	302	166	376	110	166	110	166
17	770	430	398	850	326	302	237	258	136	151	110	151
18	1,230	376	376	690	302	302	200	200	136	110	86	136
19	1,130	430	351	585	279	279	166	166	110	136	110	123
20	985	430	351	519	302	279	151	136	136	136	110	110

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
21	985	376	351	488	6,480	258	151	136	136	110	86	....
22	940	376	326	488	2,520	237	136	136	110	123	110	....
23	940	430	317	488	2,260	237	145	123	136	123	110	....
24	895	690	279	459	1,780	237	136	123	123	86	86	....
25	810	690	459	459	1,660	237	110	98	98	110	110	....
26	690	655	550	430	3,180	237	123	118	118	110	110	....
27	620	620	459	430	3,720	218	151	110	118	86	86	....
28	585	620	430	430	1,780	218	136	110	86	110	110	....
29	519	....	419	376	1,130	237	136	110	110	110	110	....
30	459	....	403	488	850	620	136	86	110	86	86	....
31	376	....	376	....	690	....	151	110	....	110	....	....
1910												
1	60	136	430	136	237	260	310	224	310	96	122	109
2	80	200	1,490	151	218	151	335	205	287	109	122	96
3	136	237	770	151	200	136	287	205	335	109	109	85
4	136	326	690	200	218	123	287	224	335	96	122	96
5	151	351	620	218	200	166	725	186	415	109	96	109
6	110	200	620	183	200	258	388	205	287	96	109	152
7	279	302	585	200	200	166	622	169	205	137	109	186
8	519	326	488	183	200	166	442	169	205	287	96	137
9	376	279	430	151	258	183	725	186	169	500	96	152
10	258	258	430	166	218	258	655	152	169	264	85	137
11	218	200	376	151	237	1,030	560	169	152	205	96	137
12	166	200	326	166	218	1,720	310	152	137	186	96	137
13	183	166	326	218	200	7,970	360	152	152	186	85	122
14	166	166	279	200	200	5,940	655	152	137	137	96	137
15	136	218	258	218	183	2,260	655	137	169	152	85	122
16	123	279	237	183	183	3,310	560	152	137	137	96	109
17	136	690	218	218	183	1,960	655	122	137	137	96	109
18	151	3,720	237	488	151	1,340	3,240	122	137	137	85	96
19	166	1,180	237	403	166	920	1,000	152	109	122	85	122
20	166	655	218	403	136	725	725	186	122	152	74	96
21	585	620	218	351	166	655	560	152	109	137	85	96
22	770	620	200	376	166	800	415	137	109	152	96	96
23	620	585	200	351	166	762	335	122	122	152	85	96
24	430	550	200	302	218	690	335	137	109	137	96	152
25	376	459	183	279	326	1,100	310	122	122	152	85	169
26	258	459	166	258	258	725	287	137	122	137	96	169
27	237	430	151	258	258	442	264	169	122	152	96	169
28	237	351	166	258	237	655	244	152	122	152	96	137
29	200	....	151	218	258	388	224	169	109	122	109	152
30	166	....	151	237	218	360	244	137	102	137	96	264
31	151	....	151	....	218	....	205	186	....	109	....	360
1911												
1	620	690	237	519	403	166	136	82	237	82	110	166
2	1,380	550	218	459	376	166	136	82	166	82	110	136
3	1,540	430	218	459	302	166	123	82	151	82	110	136
4	1,900	351	200	1,130	279	166	123	98	123	76	110	136
5	850	326	200	2,900	279	488	550	200	110	76	110	136
6	620	279	1,080	2,900	258	237	166	237	98	76	110	136
7	459	279	1,330	2,640	258	200	136	110	98	86	550	136
8	376	279	850	2,020	258	488	1,030	98	86	98	237	136
9	326	279	690	1,330	258	279	430	86	86	98	279	136
10	302	1,230	1,780	1,130	258	237	237	82	86	98	279	98
11	279	690	1,540	940	237	200	237	82	110	123	326	98
12	258	585	1,440	770	237	183	237	82	166	110	279	98
13	218	519	1,230	940	218	166	237	136	136	98	237	98
14	200	430	850	1,280	218	166	237	110	136	86	237	98
15	183	376	770	1,130	200	237	166	98	123	86	237	166

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
16	166	326	690	1,080	200	200	151	86	123	86	237	326
17	166	326	620	1,030	200	166	136	82	110	86	237	690
18	166	326	620	770	183	166	136	80	98	2,580	237	488
19	166	326	550	690	183	166	136	76	98	376	237	376
20	166	376	550	690	166	166	123	76	98	237	237	236
21	166	376	550	655	166	151	123	76	86	200	237	279
22	166	351	488	585	166	136	110	69	86	200	200	279
23	690	326	403	550	166	136	98	69	98	237	200	1,540
24	620	326	376	488	166	136	98	65	98	200	200	1,540
25	550	302	326	459	166	136	98	65	86	183	200	1,540
26	376	279	326	403	151	237	86	65	86	166	166	1,540
27	326	258	430	376	151	200	86	65	86	166	166	1,660
28	326	237	430	376	151	166	86	65	82	136	166	1,540
29	326	....	403	376	151	136	86	86	82	136	166	1,230
30	1,130	....	459	376	166	136	86	376	82	123	166	690
31	850	....	585	....	166	....	86	237	....	123	....	620
1912												
1	550	550	850	2,640	490	282	490	242	115	206	115	143
2	490	430	550	1,900	490	282	430	206	115	206	115	143
3	430	326	550	1,540	490	282	375	206	115	173	115	115
4	402	326	550	1,230	430	242	326	173	115	173	115	143
5	326	242	550	1,030	375	242	430	173	115	158	115	143
6	282	242	490	940	326	242	326	173	115	143	115	282
7	262	242	430	850	326	242	326	173	115	143	430	326
8	262	242	490	770	326	242	282	173	115	115	550	282
9	242	224	550	690	282	206	375	173	115	115	326	282
10	242	206	1,130	620	282	206	375	158	115	115	282	242
11	242	206	850	550	282	206	550	158	115	115	242	206
12	242	206	1,030	490	8,980	206	430	158	115	115	242	206
13	242	206	3,580	430	3,440	206	326	143	115	115	206	206
14	242	206	7,760	430	2,640	206	375	143	115	115	206	206
15	242	206	4,930	375	2,900	206	282	143	115	115	173	206
16	173	206	3,180	375	3,580	206	242	143	115	115	173	206
17	206	206	1,780	375	4,260	206	206	143	173	115	173	173
18	242	206	1,540	326	2,900	206	206	143	242	115	173	173
19	326	206	1,030	326	1,660	206	326	129	143	115	173	173
20	490	206	940	326	850	242	375	129	143	115	173	173
21	375	242	690	326	690	206	490	129	129	115	173	173
22	326	2,390	1,230	326	620	242	490	129	129	115	143	173
23	326	850	1,330	282	550	242	430	143	143	115	143	173
24	326	770	1,130	282	490	242	375	143	206	115	143	173
25	282	850	1,030	282	430	490	375	143	2,020	115	143	173
26	282	1,440	940	282	375	282	326	129	850	115	143	173
27	242	3,180	850	242	375	1,230	326	129	690	115	143	173
28	242	1,780	850	242	326	1,030	326	129	550	115	143	173
29	242	1,440	7,220	282	326	490	282	129	430	115	143	173
30	550	....	3,040	430	282	430	262	129	282	115	143	206
31	770	....	2,900	....	282	....	242	115	....	115	....	490
1913												
1	375	326	770	550	206	430	242	115	89	89	143	173
2	326	326	620	490	173	375	206	102	77	89	143	690
3	326	326	490	430	173	326	620	102	77	89	143	490
4	326	326	375	375	173	326	1,440	89	89	89	129	375
5	375	326	326	375	173	282	1,130	89	206	89	115	326
6	326	282	282	326	173	282	550	89	143	77	115	282
7	282	242	242	282	173	242	375	102	89	89	115	282
8	242	206	242	282	173	430	282	102	65	77	115	326
9	206	206	242	282	173	375	242	102	89	115	1,660	282
10	206	206	242	282	173	282	206	620	65	242	940	242

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	206	206	326	282	143	242	242	490	55	242	550	242
12	173	206	282	430	143	282	375	143	50	206	375	206
13	242	173	282	1,230	143	282	242	143	50	206	375	206
14	206	173	7,900	770	143	242	206	173	50	143	282	173
15	173	173	2,900	620	143	206	173	143	65	143	282	173
16	173	173	2,140	620	173	206	173	143	65	115	242	173
17	173	173	1,030	550	242	173	173	89	50	115	242	173
18	173	143	850	490	242	173	143	89	55	115	242	173
19	173	143	620	430	173	173	143	206	90	129	242	173
20	143	143	550	430	143	173	143	242	140	282	206	143
21	143	173	490	375	173	143	143	206	200	490	206	143
22	143	173	430	326	206	173	115	173	300	326	206	143
23	143	173	375	282	2,780	490	115	143	200	242	173	143
24	143	173	375	282	5,200	850	115	143	143	242	173	173
25	143	173	326	282	1,660	282	102	115	143	326	173	173
26	143	143	326	242	1,030	242	143	89	115	282	143	940
27	173	430	2,140	242	690	430	102	89	115	242	143	550
28	1,130	1,540	2,260	242	1,440	326	102	89	115	206	143	490
29	620	....	1,030	242	850	550	206	89	89	206	143	326
30	430	....	770	206	690	375	143	89	89	173	143	326
31	375	....	690	....	550	....	115	89	....	143	....	282
1914												
1	282	1,130	620	1,330	282	143	89	143	115	65	89	1,130
2	242	770	490	1,230	282	143	770	143	65	65	89	1,330
3	242	620	490	940	282	115	242	143	173	65	89	770
4	326	490	490	770	282	115	143	143	173	65	89	550
5	326	490	430	620	282	115	143	89	115	143	89	10,200
6	326	620	430	550	282	143	143	115	115	173	89	2,520
7	375	2,020	430	490	282	143	143	115	89	115	89	1,540
8	375	1,330	430	490	282	143	143	115	65	89	89	1,130
9	690	940	430	620	282	143	115	124	89	115	89	770
10	1,900	770	375	430	282	143	770	133	89	115	89	690
11	1,030	620	430	430	242	115	206	143	89	89	89	690
12	850	550	1,130	375	242	115	143	115	65	89	89	550
13	550	490	1,230	375	206	115	143	143	115	89	89	490
14	430	375	940	375	206	115	1,660	115	89	115	89	550
15	430	375	850	490	206	115	620	89	65	143	490	375
16	375	430	850	850	206	115	550	89	80	1,330	206	326
17	375	282	850	690	206	115	1,330	89	89	620	375	326
18	326	430	1,330	620	206	89	1,330	65	65	326	242	326
19	326	1,330	1,230	550	173	89	326	89	115	242	206	282
20	326	2,520	1,030	550	173	89	206	65	143	206	173	690
21	490	2,140	850	550	173	89	206	65	115	173	173	940
22	620	1,440	770	490	173	89	173	143	65	143	143	1,540
23	490	1,230	690	430	173	89	143	115	89	143	173	940
24	430	1,030	620	430	173	89	143	89	89	115	143	690
25	430	770	490	375	173	89	115	43	65	143	115	620
26	690	690	550	375	143	89	115	173	89	115	115	550
27	550	690	490	375	143	89	326	143	89	115	115	490
28	490	620	430	326	143	89	206	115	65	115	115	490
29	430	....	490	326	143	89	206	173	89	115	115	490
30	326	....	490	282	143	89	115	173	89	115	206	1,130
31	620	....	550	....	143	....	143	143	....	89	....	1,330

NOTE.—Daily discharge determined as follows: 1906, 1907, 1908; June 14 to Dec. 31, 1910, and 1912 to 1914, from a fairly well-defined rating curve; 1909 to June 13, 1910, and 1911, from a well-defined rating curve; all rating curves coincide above a discharge of about 2,000 second-feet. Discharge Jan. 1-2 and Dec. 21-22, 1910, estimated; Sept. 30, 1910, interpolated; Dec. 21-31, 1909, estimated at 40 second-feet; Sept. 10-23, 1913, estimated by hydrograph comparisons with other stations; maximum and minimum discharge estimates for September, 1913, are therefore approximate.

Monthly discharge of Roanoke River at Roanoke, Va., for 1896–1914.

[Drainage area, 388 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1896						
July 10–31	2,302	91	506	1.30	1.06	
August	162	76	98	.254	.294	
September	2,140	67	154	.397	.443	
October	673	91	142	.366	.422	
November	1,435	91	422	1.09	1.22	
December	707	91	156	.402	.464	
1897						
January	91	67	75	.194	.224	
February	8,710	67	1,514	3.90	4.06	
March	2,710	121	796	2.05	2.36	
April	610	237	404	1.04	1.16	
May	2,905	318	771	1.99	2.29	
June	550	87	378	.974	1.09	
July	673	78	203	.523	.603	
August	550	80	157	.405	.467	
September	610	61	190	.490	.547	
October	673	109	250	.644	.742	
November	109	70	82	.210	.234	
December	290	70	132	.340	.392	
The year	8,710	61	413	1.06	14.17	
1898						
January	1,135	109	454	1.17	1.35	
February	707	121	350	.902	.939	
March	1,720	76	318	.820	.945	
April 1-19	910	290	466	1.20	.848	
May	4,120	85	747	1.93	2.22	
June	721	121	270	.696	.776	
July	550	67	203	.523	.603	
August	1,780	135	570	1.47	1.70	
September	2,327	135	381	.982	1.10	
October	4,255	290	1,028	2.65	3.06	
November	865	347	510	1.31	1.46	
December	2,140	318	659	1.70	1.96	
1899						
January	5,403	550	1,124	2.90	3.34	
February	4,255	745	2,098	5.41	5.63	
March	8,508	785	2,521	6.50	7.49	
April	785	312	482	1.24	1.38	
May	730	189	377	.972	1.12	
June	910	121	278	.717	.800	
July	212	91	130	.335	.386	
August	165	76	105	.271	.312	
September	745	74	133	.343	.383	
October	121	76	88	.227	.262	
November	290	85	128	.330	.368	
December	463	91	173	.446	.514	
The year	8,508	74	636	1.64	21.98	

Monthly discharge of Roanoke River at Roanoke, Va., for 1896–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1900						
January	3,040	91	403	1.04	1.20	
February	3,377	58	639	1.65	1.72	
March	3,512	521	964	2.48	2.86	
April	2,580	263	687	1.77	1.98	
May	1,045	162	320	.825	.951	
June	1,230	162	422	1.09	1.22	
July	610	114	214	.552	.636	
August	121	76	86	.222	.256	
September	707	76	123	.317	.354	
October	3,918	99	381	.982	1.13	
November	8,575	135	593	1.53	1.71	
December	3,486	237	576	1.48	1.71	
The year	8,575	58	451	1.16	15.73	
1901						
January	2,972	169	501	1.29	1.49	
February	393	116	247	.637	.663	
March	2,840	151	531	1.37	1.58	
April	11,610	463	1,702	4.39	4.90	
May	13,600	376	1,446	3.78	4.36	
June	1,804	463	885	2.28	2.54	
July	3,985	189	859	2.21	2.55	
August	16,860	232	1,926	4.96	5.72	
September	1,045	263	454	1.17	1.30	
October	745	181	267	.688	.793	
November	296	151	183	.472	.527	
December	13,570	151	1,425	3.67	4.23	
The year	16,860	116	870	2.24	30.65	
1902						
January	4,525	263	781	2.01	2.32	
February	11,090	212	1,423	3.67	3.82	
March	2,775	347	1,047	2.69	3.10	
April	1,090	376	543	1.40	1.56	
May	376	181	256	.660	.761	
June	318	129	187	.484	.540	
July	463	85	143	.369	.425	
August	158	76	89	.229	.264	
September	85	76	78	.201	.224	
October	673	83	134	.345	.398	
November	1,045	91	239	.616	.687	
December	1,545	189	567	1.46	1.68	
The year	11,090	76	457	1.07	15.78	
1903						
January 1–29	3,040	237	606	1.56	1.68	
February 3–28	8,980	463	1,154	2.97	2.87	
March	6,550	580	1,528	3.94	4.54	
April	2,972	580	1,190	3.07	3.43	
May	785	237	391	1.01	1.16	
June	1,545	189	422	1.09	1.22	
July	1,000	135	306	.79	.91	
August	1,230	109	247	.64	.74	
September	6,617	121	531	1.37	1.53	
October	785	145	206	.53	.61	
November	263	99	162	.42	.47	
December	237	73	127	.33	.38	

Monthly discharge of Roanoke River at Roanoke, Va., for 1896–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1904						
January	355	43	150	0.387	0.446	
February	550	103	229	.590	.636	
March	1,380	212	395	1.02	1.18	
April	355	115	202	.521	.581	
May	985	196	292	.753	.868	
June	1,960	181	417	1.07	1.19	
July	1,380	103	264	.680	.784	
August	2,390	140	453	1.17	1.35	
September	286	103	133	.343	.383	
October	103	82	91	.235	.271	
November	153	92	111	.286	.319	
December	181	92	118	.304	.350	
The year	2,390	43	238	.613	8.36	
1905						
January	800	74	213	.549	.633	
February	880	85	259	.668	.696	
March	2,390	224	620	1.60	1.84	
April	500	186	316	.814	.908	
May	3,877	152	802	2.07	2.39	
June	1,390	122	317	.817	.912	
July	8,170	152	1,190	3.07	3.54	
August	725	205	374	.964	1.11	
September	4,633	152	469	1.21	1.35	
October	278	122	157	.405	.467	
November	152	101	126	.325	.363	
December	3,310	122	425	1.10	1.27	
The year	8,170	74	439	1.13	15.48	
1906						
January	3,980	310	808	2.08	2.40	
February	590	186	299	.771	.80	
March	880	186	524	1.35	1.56	
April	960	244	459	1.18	1.32	
May	360	152	243	.626	.72	
June	360	96	161	.415	.46	
July 1-15	122	85	99	.255	.14	
1907						
May 7-13	1,320	251	494	1.27	1.18	B.
June	3,310	404	768	1.98	2.21	B.
July	539	178	244	.629	.73	B.
August	251	162	187	.482	.56	B.
September	6,550	132	462	1.19	1.33	B.
October	213	162	173	.446	.51	B.
November	1,370	162	384	.990	1.10	B.
December	1,620	251	632	1.63	1.88	B.

Monthly discharge of Roanoke River at Roanoke, Va., for 1896–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1908						
January	9,380	152	1,230	3.17	3.66	B.
February	655	152	448	1.15	1.24	B.
March	590	415	506	1.30	1.50	B.
April	2,260	224	494	1.27	1.42	B.
May	1,050	264	478	1.23	1.42	B.
June	1,600	179	421	1.09	1.22	B.
July	1,660	169	358	.923	1.06	C.
August	1,100	117	207	.534	.62	C.
September	1,660	134	262	.675	.75	C.
October	6,550	109	647	1.67	1.92	B.
November	1,140	287	459	1.18	1.32	B.
December	2,450	244	627	1.62	1.87	B.
The year	9,380	109	511	1.32	18.00	
1909						
January	1,720	376	838	2.16	2.49	A.
February	1,780	317	531	1.37	1.43	A.
March	895	279	542	1.40	1.61	A.
April	7,630	237	737	1.90	2.12	A.
May	6,480	279	1,210	3.12	3.60	A.
June	940	218	413	1.06	1.18	A.
July	690	110	210	.541	.62	A.
August	895	86	248	.639	.74	A.
September	351	86	128	.330	.37	A.
October	519	75	158	.407	.47	A.
November	123	86	103	.265	.30	B.
December	376	....	108	.278	.32	B.
The year	7,630	....	436	1.12	15.25	
1910						
January	770	60	250	0.644	0.74	B.
February	3,720	136	506	1.30	1.35	A.
March	1,490	151	361	.930	1.07	A.
April	488	136	242	.624	.70	A.
May	326	136	210	.541	.62	A.
June	7,970	123	1,190	3.07	3.42	B.
July	3,240	205	546	1.41	1.63	A.
August	224	122	163	.420	.48	A.
September	415	102	175	.451	.50	A.
October	500	96	158	.407	.47	A.
November	122	74	96.7	.249	.28	A.
December	360	85	139	.358	.41	B.
The year	7,970	60	334	.861	11.67	
1911						
January	1,900	166	512	1.32	1.52	A.
February	1,230	237	408	1.05	1.09	A.
March	1,780	200	659	1.70	1.96	A.
April	2,900	376	982	2.53	2.82	A.
May	403	151	217	.559	.64	A.
June	488	136	199	.513	.57	A.
July	1,030	86	191	.492	.57	A.
August	376	65	107	.276	.32	A.
September	237	82	110	.284	.32	A.
October	2,580	76	213	.549	.63	A.
November	550	110	212	.546	.61	A.
December	1,660	98	535	1.38	1.59	A.
The year	2,580	65	362	.933	12.64	

Monthly discharge of Roanoke River at Roanoke, Va., for 1896–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1912						
January	770	173	326	0.840	0.97	A.
February	3,180	206	622	1.60	1.73	A.
March	7,760	430	1,740	4.48	5.16	B.
April	2,640	242	640	1.65	1.84	A.
May	8,980	282	1,290	3.32	3.83	B.
June	1,230	206	316	.814	.91	A.
July	550	206	354	.912	1.05	A.
August	242	115	153	.394	.45	A.
September	2,020	115	266	.686	.77	A.
October	206	115	128	.330	.38	A.
November	550	115	189	.487	.54	A.
December	490	115	203	.523	.60	A.
The year	8,980	115	520	1.34	18.23	
1913						
January	1,130	143	271	0.698	0.80	A.
February	1,540	143	266	.686	.71	A.
March	7,900	242	965	2.49	2.87	B.
April	1,230	206	408	1.05	1.17	A.
May	5,200	143	604	1.56	1.80	B.
June	850	143	312	.804	.90	A.
July	1,440	102	281	.724	.83	A.
August	620	89	151	.389	.45	A.
September	300	50	106	.273	.30	D.
October	490	77	181	.466	.54	A.
November	1,660	115	277	.714	.80	A.
December	940	143	290	.747	.86	A.
The year	7,900	50	344	.887	12.03	
1914						
January	1,900	242	505	1.30	1.50	B.
February	2,520	282	900	2.32	2.42	B.
March	1,330	375	674	1.74	2.01	A.
April	1,330	282	558	1.44	1.61	A.
May	282	143	213	.549	.63	A.
June	143	89	110	.283	.31	A.
July	1,660	89	358	.923	1.06	A.
August	173	43	117	.302	.35	B.
September	173	65	95.2	.245	.27	A.
October	1,330	65	182	.469	.54	A.
November	490	89	145	.374	.42	A.
December	10,200	282	1,110	2.86	3.30	B.
The year	10,200	43	412	1.06	14.42	

NOTE.—Discharge interpolated for following periods: Aug. 25-28, 1897; Aug. 29-30, Oct. 29-30, and Dec. 18-20, 1898; Jan. 29-30, Feb. 14, and Apr. 3, 1899; Mar. 11, 1900; July 27-30, 1905. Discharge estimates approximate May 19-23, 1900, when bridge was being repaired. Mean discharge Dec. 21-31, 1909, estimated at 40 second-feet because of ice. No discharge measurements made during 1908, and accuracy of estimates at low stages for that year is somewhat doubtful.

ROANOKE RIVER AT RANDOLPH, VA.

Location.—At Southern Railway bridge, about five-eighths mile southwest of railroad station at Randolph; about one mile above Little Roanoke River, which enters from the left.

Drainage area.—3,080 square miles.

Gage.—Chain on upstream side of bridge. Datum raised about 2 feet October 13, 1902. During construction of new bridge in the summer of 1902 a temporary gage set by observer was used.

Records available.—August 27, 1900, to August 11, 1906. Gage heights since 1905 obtained and published by United States Weather Bureau, but no estimates of discharge were computed by United States Geological Survey.

Discharge measurements.—Made from railroad bridge.

Channel and control.—Control section below bridge changes during floods, and water flows in two flood channels through railroad embankment between bridge and station at Randolph; flow in main channel passes under bridge at an angle of about 73 degrees.

Extremes of discharge.—Maximum stage recorded: 32 feet, December 30, 1901; discharge approximately 75,100 second-feet. Minimum stage recorded: 2.5 feet, October 18, 1904; discharge, 590 second-feet.

Winter flow.—Discharge relation slightly affected by ice during severe winters.

Accuracy.—Records previous to November, 1902, may be subject to considerable error; after that date, good. During construction of new bridge, gage-height records approximate.

Discharge measurements of Roanoke River at Randolph, Va., for 1906–1911.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906 June 8	Robert Follansbee..	4.20	1,440
1907 Feb. 22 ...	Warren E. Hall....	5.10	2,190
1909 Sept. 11..	Stevens and Thomas	[a]5.37	2,200
1911 July 29...	Mathers and Dean..	3.28	876

[a] Gage out of repair; gage height obtained by measurement from bench-mark on bridge.

Daily gage height, in feet, of Roanoke River at Randolph, Va., for 1906.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	10.3	11.5	5.75	9.85	4.65	5.6	5.95	8.5
2	8.65	10.1	5.75	7.95	4.8	5.4	5.65	6.55
3	6.6	7.5	5.6	7.15	4.9	5.4	5.3	6.4
4	12.9	6.2	5.75	6.75	4.8	5.4	5.05	6.85
5	23.6	6.2	5.85	6.45	4.65	5.6	4.85	7.1
6	19.8	6.35	5.9	6.4	4.85	5.5	4.75	7.3
7	7.65	6.3	6.15	6.15	5.15	5.45	4.75	7.1
8	6.7	6.25	6.0	5.95	5.7	5.15	4.55	6.9
9	6.75	6.25	5.85	6.35	6.05	5.25	4.55	6.7
10	6.9	7.05	5.75	7.5	5.9	5.35	4.85	7.4
11	6.85	6.85	5.85	8.95	5.55	5.1	5.25	7.5
12	6.95	6.65	5.85	9.15	5.5	5.15	5.8	....
13	7.15	6.25	5.85	8.65	5.0	5.05	5.9	....
14	7.25	5.7	5.75	7.3	5.05	4.95	5.65	....
15	6.75	6.05	5.65	8.25	4.9	5.2	5.45	....
16	6.55	5.85	5.65	8.2	4.85	5.2	5.25	....
17	6.35	5.65	5.85	7.5	4.65	5.25	4.75	....
18	6.3	5.45	8.85	7.35	4.75	5.35	4.45	....
19	5.85	5.35	7.7	7.35	4.65	5.65	4.25	....
20	5.4	5.35	13.0	7.4	4.65	5.15	4.4	....
21	5.85	5.25	11.0	7.0	4.45	7.2	5.05	....
22	5.85	5.35	9.1	6.75	4.45	9.35	5.55	....
23	5.65	5.15	7.75	6.45	4.2	6.95	6.5	....
24	5.75	4.95	7.05	6.45	4.1	5.1	6.15	....
25	5.6	4.95	6.8	6.3	3.9	7.75	5.3	....
26	5.8	4.85	6.75	5.95	4.1	7.4	4.6	....
27	6.05	5.15	6.75	5.65	4.45	6.65	4.55	....
28	10.6	5.35	7.15	5.6	5.75	6.35	4.25	....
29	11.55	....	7.35	5.25	8.9	6.65	4.5	....
30	12.4	....	8.75	5.0	8.3	6.25	7.45	....
31	12.5	....	15.6	....	6.55	....	7.75	....

NOTE.—Discharge relation probably unaffected by ice.

Daily discharge, in second-feet, of Roanoke River at Randolph, Va., for 1906.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	7,420	8,860	2,740	6,910	1,840	2,620	2,920	5,420
2	5,580	7,200	2,740	4,850	1,960	2,440	2,660	3,460
3	3,510	4,400	2,620	4,050	2,040	2,440	2,360	3,320
4	10,500	3,140	2,740	3,650	1,960	2,440	2,160	3,750
5	35,200	3,140	2,830	3,370	1,840	2,620	2,000	4,000
6	23,600	3,280	2,870	3,320	2,000	2,530	1,920	4,200
7	4,550	3,230	3,100	3,100	2,240	2,490	1,920	4,000
8	3,600	3,180	2,960	2,920	2,700	2,240	1,770	3,800
9	3,650	3,180	2,830	3,280	3,000	2,320	1,770	3,600
10	3,800	3,950	2,740	4,400	2,870	2,400	2,000	4,300
11	3,750	3,750	2,830	5,920	2,570	2,200	2,320	4,400
12	3,850	3,560	2,830	6,140	2,530	2,240	2,780	....
13	4,050	3,180	2,830	5,580	2,120	2,160	2,870	....
14	4,150	2,700	2,740	4,200	2,160	2,080	2,660	....
15	3,650	3,000	2,660	5,160	2,040	2,280	2,490	....
16	3,460	2,830	2,660	5,110	2,000	2,280	2,320	....
17	3,280	2,660	2,830	4,400	1,840	2,320	1,920	....
18	3,230	2,490	5,800	4,250	1,920	2,400	1,690	....
19	2,830	2,400	4,600	4,250	1,840	2,660	1,540	....
20	2,440	2,400	10,700	4,300	1,840	2,240	1,660	....

Daily discharge, in second-feet, of Roanoke River at Randolph, Va., for 1906—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
21	2,830	2,320	8,260	3,900	1,690	4,100	2,160	....
22	2,830	2,400	6,080	3,650	1,690	6,360	2,570	....
23	2,660	2,240	4,650	3,370	1,510	3,850	3,420	....
24	2,740	2,080	3,950	3,370	1,440	2,200	3,100	....
25	2,620	2,080	3,700	3,230	1,300	4,650	2,360	....
26	2,780	2,000	3,650	2,920	1,440	4,300	1,800	....
27	3,000	2,240	3,650	2,660	1,690	3,560	1,770	....
28	7,780	2,400	4,050	2,620	2,740	3,280	1,540	....
29	8,920	....	4,250	2,320	5,860	3,560	1,730	....
30	9,940	....	5,700	2,120	5,220	3,180	4,350	....
31	10,100	....	14,000	....	3,460	....	4,650	....

NOTE.—Discharge computed from a fairly well-defined rating curve.

Monthly discharge of Roanoke River at Randolph, Va., for 1900–1906.
[Drainage area, 3,080 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1900						
September	8,625	1,120	1,878	.61	.68	
October	17,900	1,350	2,597	.84	.97	
November	13,100	2,025	2,938	.96	1.07	
December	18,600	2,550	3,944	1.28	1.48	
1901						
January	35,980	2,550	5,362	1.74	2.01	
February	3,860	2,410	2,948	.98	1.02	
March	14,850	2,340	4,000	1.30	1.50	
April	36,910	3,580	9,620	3.13	3.49	
May	37,940	2,980	8,148	2.65	3.16	
June	9,750	3,140	4,759	1.55	1.73	
July	27,180	2,690	6,259	2.03	2.34	
August	44,380	2,620	13,185	4.29	4.94	
September	6,955	2,620	3,998	1.30	1.45	
October	6,725	2,795	3,346	1.09	1.26	
November	5,260	2,725	2,984	.97	1.08	
December	75,100	2,830	9,621	3.13	3.61	
The year	75,100	2,340	6,186	2.01	27.59	
1902						
January	26,200	2,800	5,388	1.75	2.02	
February	51,050	2,880	10,290	3.35	3.49	
March	40,500	3,600	8,616	2.80	3.23	
April	10,120	3,040	4,398	1.43	1.60	
May	4,950	2,400	3,250	1.06	1.22	
June	24,450	2,070	3,656	1.19	1.33	
July	3,440	1,580	2,149	.70	.81	
August	5,370	1,580	2,198	.71	.82	
September	2,720	1,535	1,844	.60	.67	
October	38,150	1,435	4,845	1.58	1.82	
November	8,600	1,370	2,551	.83	.92	
December	14,550	2,270	5,349	1.74	2.01	
The year	51,050	1,370	4,545	1.48	19.94	

Monthly discharge of Roanoke River at Randolph, Va., for 1900–1906—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	23,850	2,590	6,123	1.99	2.29	
February	44,200	3,710	8,575	2.79	2.90	
March	44,550	3,915	11,010	3.58	4.13	
April	14,050	4,320	7,041	2.29	2.55	
May	4,500	2,590	3,370	1.10	1.27	
June	9,200	2,430	4,147	1.35	1.51	
July	4,950	1,500	2,445	.79	.91	
August	9,680	1,310	2,712	.88	1.01	
September	13,420	1,570	3,273	1.06	1.18	
October	4,410	1,500	2,191	.71	.82	
November	2,510	1,500	1,841	.60	.67	
December	2,430	1,570	1,940	.63	.73	
The year	44,550	1,310	4,556	1.48	19.97	
1904						
January	2,860	1,540	2,087	0.678	0.782	
February	7,810	1,620	3,667	1.19	1.28	
March	3,770	2,020	2,787	.906	1.04	
April	4,435	1,540	2,224	.723	.807	
May	5,720	1,540	2,939	.955	1.10	
June	9,750	2,265	3,397	1.10	1.23	
July	5,420	725	2,117	.688	.793	
August	6,760	1,305	2,899	.942	1.09	
September	3,770	725	1,801	.586	.654	
October	1,230	590	787	.256	.295	
November	2,435	725	889	.289	.322	
December	2,690	1,230	1,881	.612	.706	
The year	9,750	590	2,290	.744	10.10	
1905						
January	10,530	1,050	2,773	.901	1.04	
February 22-28	9,585	7,470	8,497	2.76	.718	
March	9,010	1,950	4,601	1.50	1.73	
April	5,380	1,555	2,576	.837	.934	
May	9,470	1,630	3,974	1.29	1.49	
June	9,470	1,260	2,891	.940	1.05	
July	28,960	2,508	6,485	2.11	2.43	
August	5,750	1,710	3,083	1.00	1.15	
September	23,940	1,030	3,213	1.04	1.16	
October	3,335	1,120	1,528	.497	.573	
November	1,518	1,155	1,292	.420	.469	
December	29,740	1,592	4,733	1.54	1.78	
1906						
January	35,200	2,440	6,200	2.01	2.32	B.
February	8,860	2,000	3,220	1.05	1.09	B.
March	14,000	2,620	4,210	1.37	1.58	B.
April	6,910	2,120	3,980	1.29	1.44	B.
May	5,860	1,300	2,300	.747	.86	B.
June	6,360	2,080	2,880	.935	1.04	B.
July	4,650	1,540	2,360	.766	.88	B.
August 1-11	5,420	3,320	4,020	1.31	.54	B.

NOTE.—Estimates of discharge for September, 1900, to October, 1902, may be considerably in error. River frozen Jan. 14-15, 1902, and Jan. 28-31, 1905; no correction made in estimates for any probable effect from freezing.

ROANOKE RIVER AT OLD GASTON, N. C.

Location.—At bridge of Roanoke Railway Co., at Old Gaston, 1¼ miles north of Thelma, about three-fourths mile below mouth of Indian Creek, and 2½ miles above mouth of Deep Creek.

Drainage area.—8,350 square miles.

Records available.—December 7, 1911, to December 31, 1914.

Gage.—Chain attached to outside of guard timber on downstream side of second span from right end of deck-plate girder railroad bridge of Roanoke Railway Co.; read once daily.

Discharge measurements.—Made from downstream side of bridge to which gage is attached; measuring section broken by 11 bridge piers.

Channel and control.—Channel fairly permanent; point of control, about 1 mile below gage, rock and probably permanent. Left bank overflows in extreme floods, but a fair determination can be made of the overflow discharge around the bridge.

Extremes of discharge.—Maximum stage recorded: 16.6 feet at 7 A. M., March 18, 1912; discharge, 210,000 second feet. Minimum stage recorded: 0.95 foot at 6 A. M., October 1, 1914; discharge, 790 second-feet.

Flood of 1877 highest known in this locality. No definite marks preserved at Old Gaston, but from authentic information regarding the crest height as observed in 1877 the approximate height has been determined as about 19 feet, referred to present gage datum. The corresponding discharge is about 275,000 second-feet. (See Plate IV.)

Winter flow.—A considerable thickness of ice sometimes forms at station, but the discharge relation is seldom affected thereby.

Regulation.—Persons engaged in the operation of power plants at Roanoke Rapids and Weldon have observed on Tuesday or Wednesday during periods of low water a trough probably due to the weekly shutdown of large power plants farther upstream.

Accuracy.—Station not very sensitive, as gage is about 1 mile from lower end of a pool approximately 3 miles long. Rating curve reliable and results excellent.

Coöperation.—Station maintained by United States Geological Survey in coöperation with Virginia Railway and Power Co.

Discharge measurements of Roanoke River at Old Gaston, N. C., in 1911–1914.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1911				1912			
Dec. 8	H. J. Jackson	1.95	3,590	Mar. 19	H. J. Jackson	11.68	89,300
				Mar. 25	do	6.53	30,300
1912				Aug. 25	L. J. Bevan [a]	1.42	1,940
Feb. 24	H. J. Jackson	6.81	31,300	Nov. 18	Jackson and Batchelder	2.06	3,900
Feb. 26	do	5.08	18,400				
Feb. 28	do	8.48	47,000	1914			
Mar. 2	do	4.09	12,400	Sept. 28	Mathers and Morgan	1.24	1,430
Mar. 17	do	15.00	169,000				

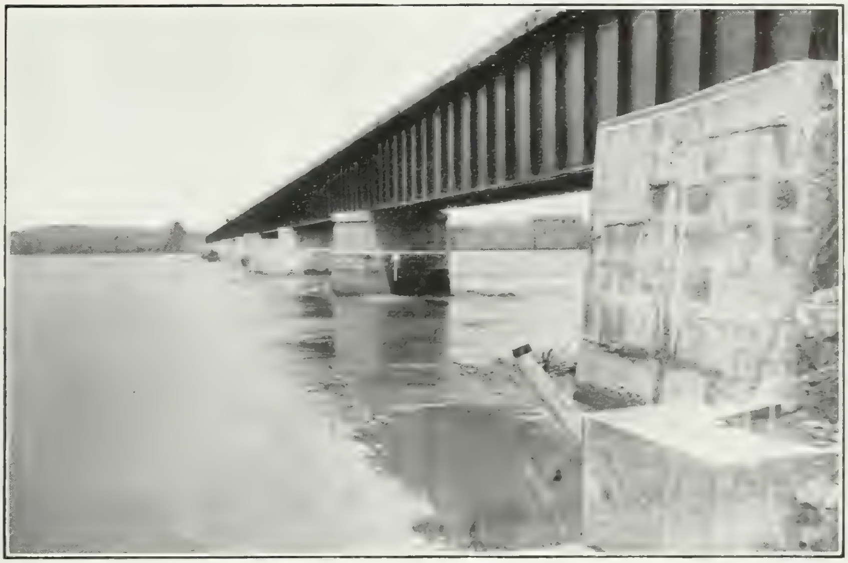
[a] Engineer with Vielé, Blackwell, and Buck.

Daily gage height, in feet, of Roanoke River at Old Gaston, N. C., for 1911–1914.

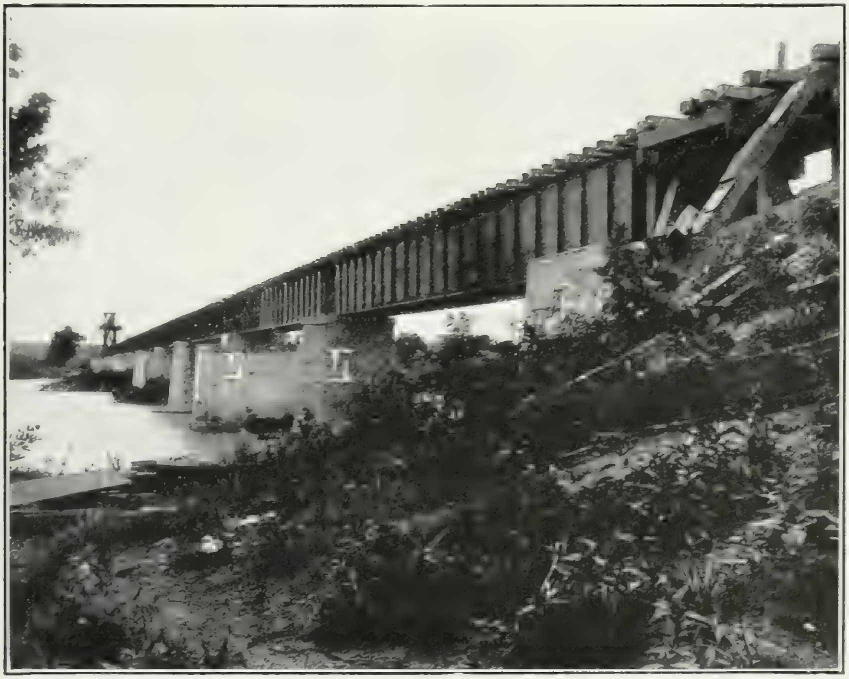
[R. A. Howell, observer.]

Day	Dec.	Day	Dec.	Day	Dec.
1911		1911		1911	
1		11	1.8	21	3.5
2		12	1.8	22	4.6
3		13	1.6	23	4.6
4		14	1.9	24	6.9
5		15	2.5	25	7.5
6		16	2.2	26	6.1
7	2.0	17	4.6	27	5.8
8	1.9	18	6.3	28	5.0
9	1.8	19	5.4	29	4.4
10	1.7	20	4.0	30	3.9
				31	3.5

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	3.4	5.4	5.6	10.45	4.05	2.45	3.75	1.65	1.4	1.95	1.7	1.75
2	3.9	4.4	4.3	5.6	3.85	2.55	3.75	1.9	1.25	1.95	1.6	1.75
3	3.8	3.4	3.75	4.85	3.45	2.45	4.75	1.5	1.15	1.75	1.7	1.75
4	3.6	3.4	3.5	4.75	3.15	2.55	3.75	1.5	1.15	1.75	1.65	1.65
5	3.5	2.5	3.25	4.35	2.9	2.25	3.2	1.45	.95	1.65	1.6	1.85
6	3.3	2.5	3.4	3.9	2.8	2.3	2.35	1.9	1.4	1.65	1.5	1.85
7	2.9	2.5	3.35	3.6	2.6	2.35	2.75	1.45	1.4	1.6	1.65	2.2
8	2.5	2.2	4.0	3.65	3.45	2.35	3.0	1.65	1.45	1.8	1.95	2.3
9	....	2.2	5.5	3.65	4.45	3.0	2.55	1.75	1.25	1.4	7.3	2.25
10	2.3	2.4	5.7	3.55	4.1	2.8	2.6	1.55	1.25	1.5	5.8	2.05
11	2.3	2.5	5.4	3.5	3.25	2.15	2.05	1.55	1.5	1.25	3.75	2.3
12	2.3	2.4	4.65	3.35	3.85	2.35	2.25	1.55	1.5	1.55	2.8	2.4
13	2.3	2.0	5.2	3.25	6.5	2.5	2.7	1.45	1.35	1.55	2.7	1.85
14	2.3	2.3	6.8	3.2	9.8	2.05	2.5	1.4	1.25	1.45	2.15	1.85
15	2.3	2.0	7.1	3.25	11.05	2.10	2.05	1.55	1.2	1.65	2.0	1.8
16	2.3	2.8	12.5	2.9	7.2	3.2	2.0	1.55	1.2	1.5	1.95	1.8
17	2.3	3.6	13.4	3.2	7.2	2.35	2.25	1.5	1.65	1.75	2.0	1.75
18	2.3	3.5	16.6	3.2	7.8	2.35	1.9	1.45	1.4	1.8	1.95	1.65
19	2.3	4.2	13.8	3.65	6.2	2.65	1.9	1.4	1.5	1.8	1.85	1.85
20	2.3	4.9	5.6	3.6	4.6	2.75	1.95	1.35	1.85	1.65	1.85	1.8
21	4.2	4.5	4.45	3.35	3.95	2.8	2.25	1.3	2.75	1.7	1.8	1.8
22	3.6	4.6	4.0	3.15	3.65	2.5	2.4	1.45	2.2	1.7	1.8	1.8
23	3.3	6.9	3.8	3.65	3.45	2.2	2.05	1.55	1.8	1.45	1.8	1.85
24	3.1	7.3	3.95	4.55	3.3	2.9	1.95	1.45	1.9	1.75	1.75	1.85
25	2.9	5.0	6.1	4.25	3.15	2.5	2.05	1.4	5.4	1.7	1.7	1.85
26	2.8	5.0	8.3	3.6	3.0	3.05	1.85	1.35	6.3	1.65	1.75	2.1
27	2.7	6.7	8.7	3.2	2.95	2.85	1.9	1.25	4.25	1.7	1.55	2.05
28	2.7	8.3	6.0	3.0	2.65	2.35	1.75	1.15	3.2	1.65	1.75	2.1
29	2.8	8.8	4.95	3.1	2.9	4.55	1.75	1.25	2.8	1.8	1.7	2.35
30	3.3	....	8.3	3.15	2.6	3.85	1.85	1.45	2.25	1.3	1.7	2.2
31	5.5	....	9.6	....	2.5	....	1.45	1.95	....	1.55	....	2.0
1913												
1	2.4	3.6	4.4	5.2	2.35	3.4	3.7	1.55	2.6	1.45	2.15	1.95
2	2.5	3.2	5.5	4.5	2.15	3.0	3.4	1.45	2.9	1.65	1.95	2.25
3	3.0	3.0	4.2	3.8	2.15	2.9	3.5	1.7	3.3	1.5	1.85	4.2
4	2.8	2.6	3.4	3.4	2.1	2.9	2.15	3.2	3.9	1.55	1.85	5.6
5	2.9	3.0	3.2	3.0	2.05	2.8	2.3	3.8	6.5	1.45	1.9	4.2
6	2.8	2.8	2.8	2.8	2.6	2.4	5.1	3.4	6.4	1.35	1.8	3.4
7	2.8	2.8	2.5	2.6	2.1	2.3	4.1	2.6	4.3	1.25	1.7	3.0
8	2.8	2.6	2.45	2.25	1.9	2.45	3.0	1.9	3.4	1.15	1.75	2.9
9	2.5	2.3	2.3	2.6	1.95	3.6	2.5	1.7	2.4	1.5	2.6	2.7
10	2.3	2.25	2.2	2.25	2.1	3.6	2.0	1.85	2.05	1.8	6.7	3.0



A. Flood of March, 1912. Horizontal line indicates height of crest of flood.



B. Medium stage. July, 1911. Lower line on bridge piers indicates level of water as shown in "*A*": upper line, height of crest of flood of March, 1912.

ROANOKE RIVER AT OLD GASTON, N. C.

Daily gage height, in feet, of Roanoke River at Old Gaston, N. C., for 1911–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	2.25	2.1	2.1	2.25	2.0	3.0	1.9	2.05	1.75	2.05	8.9	2.4
12	2.15	2.3	2.8	2.2	1.95	2.35	1.8	1.95	1.85	3.3	6.9	2.6
13	2.05	2.15	2.8	3.3	1.9	2.8	3.2	3.2	1.55	2.9	4.1	1.95
14	1.9	2.3	3.0	8.3	2.0	3.2	2.6	3.2	1.55	2.05	3.5	2.3
15	2.2	2.1	9.4	9.1	1.9	2.8	2.2	2.6	1.6	2.5	3.0	2.2
16	2.05	2.1	11.0	5.6	1.85	2.6	2.25	2.05	1.4	2.0	2.8	2.0
17	1.95	2.05	13.0	4.4	1.95	2.1	1.85	2.05	1.3	1.75	2.6	1.95
18	1.95	1.95	12.7	4.2	1.9	2.25	1.8	2.2	1.55	1.7	2.6	2.1
19	1.9	2.0	5.7	3.8	2.5	2.0	1.8	1.85	1.45	1.8	3.0	1.95
20	2.0	1.95	4.3	3.4	2.8	1.95	1.8	1.5	1.55	1.6	2.8	2.05
21	1.95	1.9	3.9	3.2	2.8	1.95	1.8	1.7	2.3	1.7	2.6	1.95
22	2.05	2.0	3.7	2.8	2.05	1.9	2.8	1.65	2.05	4.8	2.35	1.9
23	2.05	2.05	3.6	3.0	2.15	2.2	2.25	1.95	2.4	3.6	2.25	1.9
24	2.05	2.05	3.4	2.8	4.4	3.4	1.9	2.2	3.6	3.4	2.15	2.05
25	2.8	2.0	3.2	2.6	6.8	4.2	1.65	1.95	2.8	3.4	2.0	3.0
26	3.7	2.15	3.0	2.6	8.7	3.1	1.6	1.95	2.2	5.6	1.95	4.3
27	3.5	2.1	3.1	2.4	7.8	3.3	1.65	1.6	1.8	5.3	1.75	4.9
28	5.1	2.35	3.4	2.4	4.2	3.4	1.6	1.85	1.75	4.8	2.0	5.0
29	6.0	....	4.2	2.4	5.0	3.7	1.5	1.65	1.8	3.2	1.95	4.0
30	5.9	....	4.8	2.6	5.8	3.5	1.5	1.7	1.6	2.7	1.95	3.4
31	4.4	....	3.8	....	4.2	....	1.55	2.15	....	2.45	....	3.3
1914												
1	3.0	3.3	4.0	3.2	2.5	2.35	2.6	2.1	1.8	0.95	1.55	1.5
2	3.0	3.9	4.1	3.3	2.3	1.95	3.0	1.95	1.65	1.05	1.5	1.45
3	3.1	4.3	3.7	3.7	2.35	1.8	3.0	1.7	1.55	1.1	1.2	2.7
4	6.5	3.7	3.4	3.7	2.3	1.6	2.8	1.75	1.6	1.0	1.15	3.8
5	8.3	3.3	3.2	3.5	2.5	1.4	3.0	2.35	1.35	1.05	1.5	3.2
6	7.5	3.2	3.2	3.3	2.6	1.95	3.1	2.2	1.35	1.05	1.5	3.2
7	4.8	4.0	3.4	3.0	3.2	1.85	3.0	1.95	1.7	1.1	1.45	7.8
8	3.8	6.5	3.9	3.2	3.5	1.65	2.45	2.0	1.15	2.4	1.55	7.2
9	3.5	6.0	3.4	3.0	3.0	1.75	2.4	1.5	1.0	1.8	1.4	4.6
10	3.3	4.6	3.2	3.2	2.8	1.95	2.3	1.45	1.0	1.65	1.55	3.8
11	3.2	4.3	3.2	3.4	2.4	1.7	2.0	1.3	1.05	1.6	1.55	3.4
12	3.0	3.6	3.5	3.2	2.3	1.5	2.3	1.6	1.0	1.45	1.6	3.2
13	3.1	4.0	4.0	2.9	2.5	1.55	2.35	1.55	1.2	1.15	1.55	3.2
14	3.0	3.4	4.5	2.6	2.7	1.45	2.35	1.5	1.25	1.25	1.55	3.4
15	2.8	3.0	4.8	3.0	2.35	1.75	2.6	1.55	1.3	1.05	1.65	4.5
16	2.5	3.2	4.7	3.7	2.9	1.85	6.3	1.55	1.25	2.6	2.8	4.0
17	2.25	3.3	4.3	4.8	3.0	1.6	5.7	1.4	1.1	3.2	3.6	3.5
18	2.25	3.2	3.9	4.4	2.0	1.9	4.5	1.3	1.05	5.5	4.0	3.2
19	2.6	3.6	4.0	3.7	1.85	1.65	3.5	1.15	1.0	3.8	3.8	3.0
20	2.3	4.2	4.1	3.2	2.2	1.6	2.95	1.25	1.05	2.8	2.6	2.6
21	2.6	7.7	4.2	3.8	1.95	1.5	2.2	1.25	1.1	2.4	2.0	2.8
22	2.25	8.2	4.0	4.0	2.0	1.55	1.95	1.2	1.05	1.9	1.9	3.9
23	2.2	6.8	4.0	3.8	1.95	1.5	1.2	1.2	1.05	1.6	1.75	4.2
24	2.25	5.4	4.1	3.4	2.0	1.4	1.85	1.3	1.15	1.65	1.6	4.2
25	2.6	4.8	4.2	3.2	1.9	1.35	1.75	1.4	1.1	1.55	1.55	4.0
26	2.8	4.0	3.8	3.0	1.9	1.6	1.65	1.3	1.3	1.5	1.75	5.2
27	3.0	3.8	3.6	2.9	1.75	1.35	1.6	1.3	1.15	1.6	1.7	6.4
28	3.1	3.8	3.4	2.7	1.85	2.0	1.65	1.4	1.3	1.75	1.7	5.4
29	3.0	....	3.2	3.0	1.8	2.9	1.85	1.4	1.15	1.7	1.7	4.4
30	3.0	....	3.2	2.9	1.75	2.6	2.05	1.65	1.15	1.6	1.65	5.3
31	3.0	....	3.2	....	2.0	....	2.15	1.6	....	1.55	....	7.1

NOTE.—Discharge relation probably affected by ice Jan. 13-18, 1912.

Daily discharge, in second-feet, of Roanoke River at Old Gaston, N. C., for 1911–1914.

Day	Dec.	Day	Dec.	Day	Dec.
1911		1911		1911	
1		11	3,090	21	9,500
2		12	3,090	22	15,300
3		13	2,460	23	15,300
4		14	3,410	24	32,400
5		15	5,500	25	37,800
6		16	4,430	26	25,900
7	3,740	17	15,300	27	23,600
8	3,410	18	27,400	28	17,900
9	3,090	19	20,600	29	14,200
10	2,770	20	11,900	30	11,400
				31	9,500

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	9,060	20,600	22,100	68,700	12,200	5,320	10,700	2,620	1,880	3,580	2,770	2,930
2	11,400	14,200	13,600	22,100	11,200	5,680	10,700	3,410	1,500	3,580	2,460	2,930
3	10,900	9,060	10,700	16,900	9,280	5,320	16,200	2,160	1,250	2,930	2,770	2,930
4	9,960	9,060	9,500	16,200	8,000	5,680	10,700	2,160	1,250	2,930	2,620	2,620
5	9,500	5,500	8,420	13,900	7,010	4,600	8,210	2,020	790	2,620	2,460	3,250
6	8,630	5,500	9,060	11,400	6,620	4,780	4,960	3,410	1,880	2,620	2,160	3,350
7	7,010	5,500	8,840	9,960	5,870	4,960	6,430	2,020	1,880	2,460	2,620	4,430
8	5,500	4,430	11,900	10,200	9,280	4,960	7,400	2,620	2,020	3,090	3,580	4,780
9	5,140	4,430	21,400	10,200	14,400	7,400	5,680	2,930	1,500	1,880	36,000	4,600
10	4,780	5,140	22,800	9,730	12,500	6,620	5,870	2,310	1,500	2,160	23,600	3,910
11	4,780	5,500	20,600	9,500	8,420	4,260	3,910	2,310	2,160	1,500	10,700	4,780
12	4,780	5,140	15,600	8,840	11,200	4,960	4,600	2,310	2,160	2,310	6,620	5,140
13	4,600	3,740	19,200	8,420	29,000	5,500	6,240	2,020	1,750	2,310	6,240	3,250
14	4,400	4,780	31,500	8,210	60,800	3,910	5,500	1,880	1,500	2,020	4,260	3,250
15	4,200	3,740	34,200	8,420	78,000	4,080	3,910	2,310	1,370	2,620	3,740	3,090
16	4,100	6,620	106,000	7,010	35,100	8,210	3,740	2,310	1,370	2,160	3,580	3,090
17	4,000	9,960	127,000	8,210	35,100	4,960	4,600	2,160	2,620	2,930	3,740	2,930
18	4,400	9,500	210,000	8,210	40,600	4,960	3,410	2,020	1,880	3,090	3,580	2,620
19	4,780	13,000	137,000	10,200	26,600	6,060	3,410	1,880	2,160	3,090	3,250	3,250
20	4,780	17,200	22,100	9,960	15,300	6,430	3,580	1,750	3,250	2,620	3,250	3,090
21	13,000	14,700	14,400	8,840	11,700	6,620	4,600	1,620	6,430	2,770	3,090	3,090
22	9,960	15,300	11,900	8,000	10,200	5,500	5,140	2,020	4,430	2,770	3,090	3,090
23	8,630	32,400	10,900	10,200	9,280	4,430	3,910	2,310	3,090	2,020	3,090	3,250
24	7,800	36,000	11,700	15,000	8,630	7,010	3,580	2,020	3,410	2,930	2,930	3,250
25	7,010	17,900	25,900	13,300	8,000	5,500	3,910	1,880	20,600	2,770	2,770	3,250
26	6,620	17,900	45,400	9,960	7,400	7,600	3,250	1,750	27,400	2,620	2,930	4,080
27	6,240	30,700	49,300	8,210	7,200	6,820	3,410	1,500	13,300	2,770	2,310	3,910
28	6,240	45,400	25,100	7,400	6,060	4,960	2,930	1,250	8,210	2,620	2,930	4,080
29	6,620	50,300	17,500	7,800	7,010	15,000	2,930	1,500	6,620	3,090	2,770	4,960
30	8,630		45,400	8,000	5,870	11,200	3,250	2,020	4,600	1,620	2,770	4,430
31	21,400		58,600		5,500		2,020	3,580		2,310		3,740
1913												
1	5,140	9,960	14,200	19,200	4,960	9,060	10,400	2,310	5,870	2,020	4,260	3,580
2	5,500	8,210	21,400	14,700	4,260	7,400	9,060	2,020	7,010	2,620	3,580	4,600
3	7,400	7,400	13,000	10,900	4,260	7,010	9,500	2,770	8,630	2,160	3,250	13,000
4	6,620	5,870	9,060	9,060	4,080	7,010	4,260	8,210	11,400	2,310	3,250	22,100
5	7,010	7,400	8,210	7,400	3,910	6,620	4,780	10,900	29,000	2,020	3,410	13,000
6	6,620	6,620	6,620	6,620	5,870	5,140	18,500	9,060	28,200	1,750	3,090	9,060
7	6,620	6,620	5,500	5,870	4,080	4,780	12,500	5,870	13,600	1,500	2,770	7,400
8	6,620	5,870	5,320	4,600	3,410	5,320	7,400	3,410	9,060	1,250	2,930	7,010
9	5,500	4,780	4,780	5,870	3,580	9,960	5,500	2,770	5,140	2,160	5,870	6,240
10	4,780	4,600	4,430	4,600	4,080	9,960	3,740	3,250	3,910	3,090	30,700	7,400

Daily discharge, in second-feet, of Roanoke River at Old Gaston, N. C., for 1911–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
11	4,600	4,080	4,080	4,600	3,740	7,400	3,410	3,910	2,930	3,910	51,300	5,140
12	4,260	4,780	6,620	4,430	3,580	4,960	3,090	3,580	3,250	8,630	32,400	5,870
13	3,910	4,260	6,620	8,630	3,410	6,620	8,210	8,210	2,310	7,010	12,500	3,580
14	3,410	4,780	7,400	45,400	3,740	8,210	5,870	8,210	2,310	3,910	9,500	4,780
15	4,430	4,080	56,400	53,300	3,410	6,620	4,430	5,870	2,460	5,500	7,400	4,430
16	3,910	4,080	77,100	22,100	3,250	5,870	4,600	3,910	1,880	3,740	6,620	3,740
17	3,580	3,910	117,000	14,200	3,580	4,080	3,250	3,910	1,620	2,930	5,870	3,580
18	3,580	3,580	110,000	13,000	3,410	4,600	3,090	4,430	2,310	2,770	5,870	4,080
19	3,410	3,740	22,800	10,900	5,500	3,740	3,090	3,250	2,020	3,090	7,400	3,580
20	3,740	3,580	13,600	9,060	6,620	3,580	3,090	2,160	2,310	2,460	6,620	3,910
21	3,580	3,410	11,400	8,210	6,620	3,580	3,090	2,770	4,780	2,770	5,870	3,580
22	3,910	3,740	10,400	6,620	3,910	3,410	6,620	2,620	3,910	16,600	4,960	3,410
23	3,910	3,910	9,960	7,400	4,260	4,430	4,600	3,580	5,140	9,960	4,600	3,410
24	3,910	3,910	9,060	6,620	14,200	9,060	3,410	4,430	9,960	9,060	4,260	3,910
25	6,620	3,740	8,210	5,870	31,500	13,000	2,620	3,580	6,620	9,060	3,740	7,400
26	10,400	4,260	7,400	5,870	49,300	7,800	2,460	3,580	4,430	22,100	3,580	13,600
27	9,500	4,080	7,800	5,140	40,600	8,630	2,620	2,460	3,090	19,900	2,930	17,200
28	18,500	4,960	9,060	5,140	13,000	9,060	2,460	3,250	2,930	16,600	3,740	17,900
29	25,100	....	13,000	5,140	17,900	10,400	2,160	2,620	3,090	8,210	3,580	11,900
30	24,300	....	16,600	5,870	23,600	9,500	2,160	2,770	2,460	6,240	3,580	9,060
31	14,200	....	10,900	....	13,000	....	2,310	4,260	....	5,320	....	8,630
1914												
1	7,400	8,630	11,900	8,210	5,500	4,960	5,870	4,080	3,090	790	2,360	2,160
2	7,400	11,400	12,500	8,630	4,780	3,580	7,400	3,580	2,620	915	2,160	2,020
3	7,800	13,600	10,400	10,400	4,960	3,090	7,400	2,770	2,310	1,130	1,370	6,240
4	29,000	10,400	9,060	10,400	4,780	2,460	6,620	2,930	2,460	900	1,250	10,900
5	45,400	8,630	8,210	9,500	5,500	1,880	7,400	4,960	1,750	915	2,160	8,210
6	37,800	8,210	8,210	8,630	5,870	3,580	7,800	4,430	1,750	915	2,160	8,210
7	16,600	11,900	9,060	7,400	8,210	3,250	7,400	3,580	2,770	1,130	2,020	40,600
8	10,900	29,000	11,400	8,210	9,500	2,620	5,320	3,740	1,250	5,140	2,360	35,100
9	9,500	25,100	9,060	7,400	7,400	2,930	5,140	2,160	900	3,090	1,880	15,300
10	8,630	15,300	8,210	8,210	6,620	3,580	4,780	2,020	900	2,620	2,360	10,900
11	8,210	13,600	8,210	9,060	5,140	2,770	3,740	1,620	1,020	2,460	2,360	9,060
12	7,400	9,960	9,500	8,210	4,780	2,160	4,780	2,460	900	2,020	2,460	8,210
13	7,800	11,900	11,900	7,010	5,500	2,310	4,960	2,310	1,370	1,250	2,360	8,210
14	7,400	9,060	14,700	5,870	6,240	2,020	4,960	2,160	1,500	1,500	2,360	9,060
15	6,620	7,400	16,600	7,400	4,960	2,930	5,870	2,310	1,620	915	2,620	14,700
16	5,500	8,210	15,900	10,400	7,010	3,250	27,400	2,310	1,500	5,870	6,620	11,900
17	4,600	8,630	13,600	16,600	7,400	2,460	22,800	1,880	1,130	8,210	9,960	9,500
18	4,600	8,210	11,400	14,200	3,740	3,410	14,700	1,620	1,020	21,400	11,900	8,210
19	5,870	9,960	11,900	10,400	3,250	2,620	9,500	1,250	900	10,900	10,900	7,400
20	4,780	13,000	12,500	8,210	4,430	2,460	7,200	1,500	1,020	6,620	5,870	5,870
21	5,870	39,700	13,000	10,900	3,580	2,160	4,430	1,500	1,130	5,140	3,740	6,620
22	4,600	44,400	11,900	11,900	3,740	2,310	3,580	1,370	1,020	3,410	3,410	11,400
23	4,430	31,500	11,900	10,900	3,580	2,160	1,370	1,370	1,020	2,460	2,930	13,000
24	4,600	20,600	12,500	9,060	3,740	1,880	3,250	1,620	1,250	2,620	2,460	13,000
25	5,870	16,600	13,000	8,210	3,410	1,750	2,930	1,880	1,130	2,310	2,310	11,900
26	6,620	11,900	10,900	7,400	3,410	2,460	2,620	1,620	1,620	2,160	2,930	19,200
27	7,400	10,900	9,960	7,010	2,930	1,750	2,460	1,620	1,250	2,460	2,770	28,200
28	7,800	10,900	9,060	6,240	3,250	3,740	2,620	1,880	1,620	2,930	2,770	20,600
29	7,400	....	8,210	7,400	3,090	7,010	3,250	1,880	1,250	2,770	2,770	14,200
30	7,400	....	8,210	7,010	2,930	5,870	3,910	2,620	1,250	2,460	2,620	19,900
31	7,400	....	8,210	....	3,740	....	4,260	2,460	....	2,360	....	34,200

NOTE.—Daily discharge determined from a rating curve well defined below 33,300 second-feet and fairly well defined up to 181,000 second-feet. Above 194,000 second-feet the rating curve is assumed a tangent. Discharge Jan. 13-18, 1912, estimated because of ice. A measurement made in 1914 at a lower stage than any previous measurements indicated that the curve used for discharge estimates below 25,000 second-feet was not correct. Discharge estimates for 1911-12 have therefore been recomputed, and supersede those previously published in United States Geological Survey Water-Supply Papers 302 and 322.

Monthly discharge of Roanoke River at Old Gaston, N. C., for 1911–1914.

[Drainage area, 8,350 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1911						
December 7-31	37,800	2,460	12,900	1.54	1.43	A.
1912						
January	21,400	4,000	7,380	0.884	1.02	B.
February	50,300	3,740	14,600	1.75	1.89	A.
March	210,000	8,420	38,000	4.55	5.25	A.
April	68,700	7,010	12,400	1.49	1.66	A.
May	78,000	5,500	16,900	2.02	2.33	A.
June	15,000	3,910	6,110	.732	.82	A.
July	16,200	2,020	5,440	.651	.75	A.
August	3,580	1,250	2,200	.263	.30	A.
September	27,400	790	4,460	.534	.60	A.
October	3,580	1,500	2,610	.313	.36	A.
November	36,000	2,160	5,290	.634	.71	A.
December	5,140	2,620	3,590	.430	.50	A.
The year	210,000	790	9,920	1.19	16.19	
1913						
January	25,100	3,410	7,240	.867	1.00	A.
February	9,960	3,410	5,010	.600	.62	A.
March	117,000	4,080	20,300	2.43	2.80	A.
April	53,300	4,430	11,200	1.34	1.50	A.
May	49,300	3,250	9,700	1.16	1.34	A.
June	13,000	3,410	6,890	.825	.92	A.
July	18,500	2,160	5,230	.626	.72	A.
August	10,900	2,020	4,320	.517	.60	A.
September	29,000	1,620	6,390	.765	.85	A.
October	22,100	1,250	6,150	.737	.85	A.
November	51,300	2,770	8,310	.995	1.11	A.
December	22,100	3,410	7,620	.913	1.05	A.
The year	117,000	1,250	8,220	.984	13.36	
1914						
January	45,400	4,430	10,100	1.21	1.40	A.
February	44,400	7,400	15,300	1.83	1.91	A.
March	16,600	8,210	11,000	1.32	1.52	A.
April	16,600	5,870	9,010	1.08	1.20	A.
May	9,500	2,930	4,930	.590	.68	A.
June	7,010	1,750	2,980	.357	.40	A.
July	27,400	1,370	6,640	.795	.92	A.
August	4,960	1,250	2,370	.284	.33	A.
September	3,090	900	1,480	.177	.20	A.
October	21,400	790	3,540	.424	.49	A.
November	11,900	1,250	3,540	.424	.47	A.
December	40,600	2,020	13,700	1.64	1.89	A.
The year	45,400	790	7,010	.839	11.41	

NOTE.—Discharge estimates for 1911-12 supersede those previously published in U. S. Geological Survey Water-Supply Papers 302 and 322.

TINKER CREEK AT ROANOKE, VA.

Location.—At the Lynchburg Avenue bridge, about 1½ miles northeast of the center of Roanoke, and about 1 mile above Glade Creek, the nearest important tributary.

Drainage area.—70 square miles.

Records available.—July 16, 1907, to July 31, 1908.

Gage.—Chain gage installed April 27, 1908, on upstream side of bridge to replace original vertical staff on left abutment.

Discharge measurements.—Made from bridge.

Channel and control.—Both banks will overflow at high stages, but all water passes under bridge. Just below bridge a low temporary dam of loose rock forms the controlling section at medium stages. At very low stages there is a small rapid between bridge and dam.

Extremes of discharge.—Maximum stage recorded: 7.0 feet at 10 A. M., September 23, 1907; discharge not computed. Minimum stage recorded: 0.4 foot, August and September, 1907; discharge, 13 second-feet.

Winter flow.—Discharge relation not affected by ice during 1907-8.

Accuracy.—Records good for low and medium stages; rating curve not developed for high stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with United States Forest Service.

Discharge measurements of Tinker Creek at Roanoke, Va., in 1907.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
May 7	R. J. Taylor	1.23	168	July 20	R. G. Knight	.69	56
June 22	R. G. Knight	.86	90	July 23	do	.63	39

Daily gage height, in feet, of Tinker Creek at Roanoke, Va., for 1907–8.

[R. P. Vandergrift, observer.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907						
1	......	0.55	0.5	0.6	0.5	0.85
2	......	.55	.5	.6	.9	.8
3	......	.5	.5	.6	.85	.8
4	......	.5	.5	.6	.65	.8
5	......	.4	.5	.6	.65	.75
6	......	.4	.5	.6	.65	.75
7	......	.4	.65	.7	.6	.75
8	......	.4	.5	.65	.6	.7
9	......	.45	.55	.6	.6	.7
10	......	.75	.4	.6	.6	1.05
11	......	.6	.65	.65	.6	1.0
12	......	.6	.65	.6	.55	.9
13	......	.65	.65	.55	.6	.9
14	......	.5	.7	.6	.6	1.5
15	......	.5	.7	.6	.6	1.65
16	0.7	0.5	0.6	0.6	0.6	1.65
17	.7	.5	.5	.7	.6	1.2
18	.7	.5	.55	.7	.85	1.05
19	.7	.5	.55	.7	1.0	1.0
20	.7	.5	.5	.65	.9	1.0
21	.7	.5	.5	.6	.9	1.0
22	.7	.55	.6	.6	.9	.9
23	.6	.6	5.0	.6	1.75	1.9
24	.6	.6	1.5	.55	2.0	1.5
25	.6	.6	.85	.55	1.0	1.2
26	.5	.5	.9	.55	1.0	1.0
27	.5	.5	.95	.55	.9	1.0
28	.6	.4	.95	.55	.9	1.0
29	.7	.4	.85	.55	.9	1.0
30	.6	.4	.75	.55	.9	1.25
31	.5	.5	......	.6	......	1.05

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	1.15	0.75	1.05	1.55	0.8	0.8	0.8	......	......	......	......	......
2	1.05	.75	1.05	1.55	.8	.85	1.05	......	......	......	......	......
3	1.05	.95	1.05	1.4	.8	.9	.85	......	......	......	......	......
4	1.05	.95	1.05	1.25	.8	[illegible]	1.7	......	......	......	......	......
5	1.05	.95	1.05	1.05	.8	1.1	1.35	......	......	......	......	......
6	1.05	.95	1.3	1.05	.8	1.0	1.55	......	......	......	......	......
7	2.05	.95	1.2	1.05	1.4	1.0	1.4	......	......	......	......	......
8	2.05	.95	1.05	.95	1.25	.9	1.05	......	......	......	......	......
9	1.25	.95	1.05	.95	1.1	1.55	1.0	......	......	......	......	......
10	1.1	.95	1.05	.95	.9	1.1	1.0	......	......	......	......	......
11	1.05	.95	1.05	.95	.9	1.1	1.0	......	......	......	......	......
12	4.05	1.1	1.05	.85	.9	1.0	1.0	......	......	......	......	......
13	2.0	1.65	1.05	.85	.9	1.0	1.0	......	......	......	......	......
14	1.55	1.85	1.05	.85	.9	1.0	.9	......	......	......	......	......
15	1.25	2.5	.95	.85	.9	1.0	.9	......	......	......	......	......
16	1.05	1.55	.95	.85	.8	1.0	.6	......	......	......	......	......
17	1.05	1.35	.95	.85	.8	.9	.8	......	......	......	......	......
18	1.05	1.15	.95	.85	.8	.9	.8	......	......	......	......	......
19	1.05	1.15	.95	.85	.8	.9	.8	......	......	......	......	......
20	1.05	1.15	.85	.85	.8	.9	.8	......	......	......	......	......
21	1.05	1.05	.85	.85	.9	.9	.8	......	......	......	......	......
22	1.05	1.05	.85	.85	.9	.9	.8	......	......	......	......	......
23	.95	1.05	.95	.85	1.0	.9	.8	......	......	......	......	......
24	.95	1.05	1.15	.8	1.0	.9	1.0	......	......	......	......	......
25	.95	1.05	1.1	.75	.8	.8	1.0	......	......	......	......	......
26	.85	1.05	1.05	.75	.8	.8	1.0	......	......	......	......	......
27	.85	1.05	1.05	.78	.8	.8	1.45	......	......	......	......	......
28	.85	1.05	.95	.8	.8	.8	1.15	......	......	......	......	......
29	.85	1.05	.95	.8	.8	.8	1.0	......	......	......	......	......
30	.85	......	.95	.75	.8	.8	1.0	......	......	......	......	......
31	.8	......	1.05	......	.8	......	1.0	......	......	......	......	......

Daily discharge, in second-feet, of Tinker Creek at Roanoke, Va., for 1907–8.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907							1907						
1	......	31	24	38	24	84	16	55	24	38	38	38	......
2	......	31	24	38	95	74	17	55	24	24	55	38	161
3	......	24	24	38	84	74	18	55	24	31	55	84	126
4	......	24	24	38	46	74	19	55	24	31	55	115	115
5	......	13	24	38	46	64	20	55	24	24	46	95	115
6	......	13	24	38	46	64	21	55	24	24	38	95	115
7	......	13	46	55	38	64	22	55	31	38	38	95	95
8	......	13	24	46	38	55	23	38	38	......	38	......	......
9	......	18	31	38	38	55	24	38	38	245	31	......	245
10	......	64	13	38	38	126	25	38	38	84	31	115	161
11	......	38	46	46	38	115	26	24	24	95	31	115	115
12	......	38	46	38	31	95	27	24	24	105	31	95	115
13	......	46	46	31	38	95	28	38	13	105	31	95	115
14	......	24	55	38	38	245	29	55	13	84	31	95	115
15	......	24	55	38	38	......	30	38	13	64	31	95	174
							31	24	24	......	38	......	120

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1908								1908							
1	147	64	126	......	74	74	74	16	126	......	105	84	74	115	38
2	126	64	126	......	74	84	126	17	126	201	105	84	74	95	74
3	126	105	126	215	74	95	84	18	126	149	105	84	74	95	74
4	126	105	126	174	74	201	......	19	126	149	105	84	74	95	74
5	126	105	126	126	74	137	201	20	126	149	84	84	74	95	74
6	126	105	187	126	74	115	......	21	126	126	84	84	95	95	74
7	......	105	161	126	215	115	215	22	126	126	84	84	95	95	74
8	......	105	126	105	174	95	126	23	105	126	105	84	115	95	74
9	174	105	126	105	137	......	115	24	105	126	147	74	115	95	115
10	137	105	126	105	95	137	115	25	105	126	137	64	74	74	115
11	126	105	126	105	95	137	115	26	84	126	126	64	74	74	115
12	......	137	126	84	95	115	115	27	84	126	126	70	74	74	230
13	......	......	126	84	95	115	115	28	84	126	105	74	74	74	149
14	......	......	126	84	95	115	95	29	84	126	105	74	74	74	115
15	174	......	105	84	95	115	95	30	84	......	105	64	74	74	115
								31	74	......	126	......	74	......	115

NOTE.—Daily discharges for 1907 and 1908 are based on a fairly well-defined rating curve. The discharge was greater than 250 second-feet for all missing days from July 16, 1907, to July 31, 1908.

BACK CREEK NEAR ROANOKE, VA.

Location.—At a footbridge half a mile below settlement of Red Hill, and about 7 miles south of Roanoke. Nearest tributary, Narrows Creek, enters a short distance below station.

Drainage area.—43 square miles.

Records available.—May 8, 1907, to July 31, 1908.

Gage.—Staff fastened to overhanging tree on right bank about 200 feet above footbridge.

Discharge measurements.—Made from the footbridge or by wading.

Channel and control.—Both banks clean and will overflow somewhat. Bed is composed of sand and gravel; practically permanent.

Extremes of discharge.—Maximum stage recorded: 6.9 feet, September 23, 1907; discharge not computed. Minimum stage recorded: 0.9 foot, September, 1907; discharge, 10 second-feet.

Winter flow.—Discharge relation not affected by ice during 1907-8.

Accuracy.—Results good for low and medium stages; rating curve not developed for high stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with United States Forest Service.

Discharge measurements of Back Creek near Roanoke, Va., in 1907–8.

Date	Made by	Gage height	Dis-charge	Date	Made by	Gage height	Dis-charge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1907				1907			
May 8	R. J. Taylor	1.50	97	July 20	R. G. Knight	1.16	34
June 21	R. G. Knight	1.36	64	July 23	do	1.08	25
				1908			
				Apr. 25	Follansbee and Barrows	1.32	54

Daily gage height, in feet, of Back Creek near Roanoke, Va., for 1907–8.

[W. P. Turner, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	4.4	1.3	1.0	0.9	1.4	1.4	1.5
2	......	......	......	......	......	2.5	1.3	1.0	.9	1.5	1.7	1.5
3	......	......	......	......	......	2.1	1.3	1.0	1.1	1.5	1.5	1.5
4	......	......	......	......	......	1.7	1.2	1.0	1.2	1.5	1.4	1.5
5	......	......	......	......	......	1.7	1.2	1.0	1.1	1.5	1.4	1.5
6	......	......	......	......	......	1.6	1.2	1.15	1.0	1.5	1.4	1.5
7	......	......	......	......	......	1.5	1.2	1.1	1.0	1.5	1.4	1.5
8	......	......	......	......	1.5	1.6	1.1	1.0	1.0	1.5	1.4	1.5
9	......	......	......	......	1.5	1.5	1.1	1.0	1.0	1.5	1.4	1.6
10	......	......	......	......	1.4	1.4	1.3	1.0	1.0	1.5	1.5	1.8
11	......	......	......	......	1.4	1.6	1.2	1.4	1.4	1.5	1.5	1.7
12	......	......	......	......	1.3	1.5	1.2	1.3	1.1	1.4	1.5	1.6
13	......	......	......	......	1.3	3.1	1.2	1.5	1.0	1.4	1.5	1.5
14	......	......	......	......	1.2	2.5	1.2	1.2	1.0	1.4	1.4	1.6
15	......	......	......	......	1.2	2.0	1.3	1.1	1.0	1.4	1.4	1.8
16	......	......	......	......	1.2	1.8	1.2	1.1	.9	1.4	1.4	1.9
17	......	......	......	......	1.2	1.6	1.4	1.1	.9	1.4	1.4	1.8
18	......	......	......	......	1.2	1.5	1.2	1.0	.9	1.4	1.9	1.7
19	......	......	......	......	1.1	1.4	1.2	1.0	.9	1.4	1.6	1.6
20	......	......	......	......	1.1	1.4	1.2	1.0	.9	1.4	1.5	1.6
21	......	......	......	......	1.1	1.35	1.1	1.0	1.0	1.4	1.7	1.6
22	......	......	......	......	1.1	1.3	1.1	1.5	1.2	1.4	1.6	1.6
23	......	......	......	......	1.1	1.3	1.1	1.2	6.9	1.4	1.7	3.85
24	......	......	......	......	1.1	1.3	1.1	1.1	2.5	1.4	2.5	2.5
25	......	......	......	......	1.2	1.7	1.0	1.0	1.9	1.4	2.0	2.2
26	......	......	......	......	1.1	1.5	1.0	1.0	1.6	1.4	1.8	1.8
27	......	......	......	......	1.1	1.4	1.0	1.0	1.5	1.5	1.6	1.7
28	......	......	......	......	1.1	1.3	1.0	1.0	1.5	1.5	1.6	1.6
29	......	......	......	......	1.1	1.7	1.1	1.0	1.5	1.4	1.5	1.7
30	......	......	......	......	1.1	1.4	1.1	1.0	1.4	1.4	1.5	2.2
31	......	......	......	......	1.2	......	1.0	1.0	......	1.4	......	1.8

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1908								1908							
1	1.7	1.5	1.6	2.0	1.2	1.1	1.3	16	2.0	2.2	1.4	1.3	1.3	1.3	1.0
2	1.7	1.7	1.5	1.9	1.2	1.0	1.3	17	1.9	2.0	1.4	1.3	1.2	1.3	1.0
3	1.7	1.7	1.5	1.7	1.2	1.1	1.5	18	1.9	1.9	1.4	1.3	1.2	1.2	1.0
4	1.7	1.7	1.5	1.6	1.2	2.5	1.3	19	1.8	1.9	1.4	1.2	1.3	1.2	1.0
5	1.7	1.6	1.7	1.5	1.1	1.5	1.8	20	1.8	1.7	1.5	1.2	1.4	1.2	1.0
6	1.7	1.6	1.7	1.5	1.1	1.4	1.6	21	1.8	1.7	1.5	1.2	1.4	1.2	1.0
7	3.3	1.7	1.7	1.5	1.9	1.3	1.5	22	1.7	1.7	1.5	1.2	1.4	1.2	1.0
8	2.2	1.7	1.6	1.5	1.5	1.3	1.5	23	1.7	1.7	1.6	1.2	1.4	1.2	1.3
9	2.0	1.7	1.6	1.4	1.4	1.9	1.4	24	1.7	1.6	1.5	1.2	1.3	1.1	1.2
10	1.9	1.7	1.6	1.4	1.3	1.4	1.3	25	1.7	1.6	1.5	1.3	1.3	1.1	1.1
11	1.7	1.6	1.5	1.4	1.2	1.3	1.3	26	1.7	1.8	1.5	1.3	1.2	1.35	1.6
12	4.5	2.0	1.6	1.4	1.2	1.8	1.2	27	1.7	1.7	1.4	1.2	1.2	1.2	1.3
13	3.0	2.4	1.5	1.3	1.2	1.5	1.2	28	1.6	1.6	1.4	1.1	1.2	1.1	1.2
14	2.5	2.5	1.5	1.3	1.2	1.4	1.1	29	1.5	1.6	1.4	1.2	1.1	1.1	1.5
15	2.2	4.0	1.4	1.4	1.2	1.4	1.1	30	1.5	......	1.4	1.4	1.1	1.0	1.2
								31	1.5	......	1.5	......	1.1	......	1.1

Daily discharge, in second-feet, of Back Creek near Roanoke, Va., for 1907–8.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	......	55	17	10	72	72	91
2	......	......	......	......	......	......	55	17	10	91	......	91
3	......	......	......	......	......	......	55	17	27	91	91	91
4	......	......	......	......	......	......	40	17	40	91	72	91
5	......	......	......	......	......	......	40	17	27	91	72	91
6	......	......	......	......	......	......	40	34	17	91	72	91
7	......	......	......	......	......	91	40	27	17	91	72	91
8	......	......	......	......	91	......	27	17	17	91	72	91
9	......	......	......	......	91	91	27	17	17	91	72	......
10	......	......	......	......	72	72	55	17	17	91	91	......
11	......	......	......	......	72	......	40	72	72	91	91	......
12	......	......	......	......	55	91	40	55	27	72	91	......
13	......	......	......	......	55	......	40	91	17	72	91	91
14	......	......	......	......	40	......	40	40	17	72	72	......
15	......	......	......	......	40	......	55	27	17	72	72	......
16	......	......	......	......	40	......	40	27	10	72	72	......
17	......	......	......	......	40	......	72	27	10	72	72	......
18	......	......	......	......	40	91	40	17	10	72	......	......
19	......	......	......	......	27	72	40	17	10	72	......	......
20	......	......	......	......	27	72	40	17	10	72	91	......
21	......	......	......	......	27	64	27	17	17	72	......	......
22	......	......	......	......	27	55	27	91	40	72	......	......
23	......	......	......	......	27	55	27	40	......	72	......	......
24	......	......	......	......	27	55	27	27	......	72	......	......
25	......	......	......	......	40	......	17	17	......	72	......	......
26	......	......	......	......	27	91	17	17	......	72	......	......
27	......	......	......	......	27	72	17	17	91	91	......	......
28	......	......	......	......	27	55	17	17	91	91	......	......
29	......	......	......	......	27	......	27	17	91	72	91	......
30	......	......	......	......	27	72	27	17	72	72	91	......
31	......	......	......	......	40	......	17	17	......	72	......	......

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1908								1908							
1	......	91	......	......	40	27	55	16	......	......	72	55	55	55	17
2	......	......	91	......	40	17	55	17	......	......	72	55	40	55	17
3	......	......	91	......	40	27	91	18	......	......	72	55	40	40	17
4	......	......	91	......	40	......	55	19	......	......	72	40	55	40	17
5	......	......	......	91	27	91	......	20	......	......	91	40	72	40	17
6	......	......	......	91	27	72	......	21	......	......	91	40	72	40	17
7	......	......	......	91	......	55	91	22	......	......	91	40	72	40	17
8	......	......	......	91	91	55	91	23	......	......	......	40	72	40	55
9	......	......	......	72	72	......	72	24	......	......	91	40	55	27	40
10	......	......	......	72	55	72	55	25	......	......	91	55	55	27	27
11	......	......	91	72	40	55	55	26	......	......	91	55	40	64	......
12	......	......	......	72	40	......	40	27	......	......	72	40	40	40	55
13	......	......	91	55	40	91	40	28	......	......	72	27	40	27	40
14	......	......	91	55	40	72	27	29	91	......	72	40	27	27	91
15	......	......	72	72	40	72	27	30	91	......	72	72	27	17	40
								31	91	......	91	......	27	......	27

NOTE.—Daily discharges for 1907 and 1908 are based on a well defined rating curve. The discharge was greater than 100 second-feet for all missing days from May 18, 1907, to July 31, 1908.

DAN RIVER AT SOUTH BOSTON, VA.

Location.—At Norfolk & Western Railway bridge at South Boston. Banister River enters from the north about 7 miles below station.

Drainage area.—2,750 square miles.

Records available.—August 27, 1900, to May 5, 1907.

Gage.—Chain installed May 18, 1903, to replace wire gage previously used; read twice daily.

Discharge measurements.—Made from bridge.

Channel and control.—Left bank high; does not overflow. At high stages right bank overflows several hundred feet under a curved trestle approach to bridge. Bed of stream, sand and mud. Control section shifts during floods.

Extremes of discharge.—Maximum stage recorded: 25.2 feet at 4 p. m., December 31, 1901; discharge, 52,600 second-feet. Minimum stage observed: —0.10 foot at 10 a. m., October 11, 1904; discharge, 350 second-feet.

Winter flow.—Discharge relation not seriously affected by ice.

Accuracy.—Results good.

The following discharge measurement was made by Robert Follansbee:

June 9, 1906: Gage height, 2.13 feet; discharge, 1,850 second-feet.

Daily gage height, in feet, of Dan River at South Boston, Va., for 1906–7.

[John R. East, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	4.25	2.9	4.28	8.75	2.6	1.68	2.6	3.35	4.18	2.55	3.0	1.98
2	3.95	2.25	4.12	5.75	2.3	1.38	2.28	4.2	4.25	5.85	3.1	2.08
3	4.55	2.25	4.35	4.5	2.4	1.45	2.0	3.4	4.05	3.95	2.85	2.02
4	16.1	2.05	5.0	4.4	2.55	1.58	2.05	3.65	5.95	4.15	2.55	2.05
5	19.7	3.75	5.65	3.8	2.18	1.55	2.18	3.25	4.6	8.75	2.35	2.15
6	18.0	4.3	4.8	3.52	2.3	1.4	3.7	3.75	3.88	7.32	2.3	2.35
7	9.6	3.02	3.82	2.7	3.48	1.6	3.95	3.3	3.28	4.95	2.08	2.4
8	6.6	3.85	3.45	3.08	3.95	1.65	4.0	3.08	2.85	3.6	2.18	2.22
9	5.62	4.65	3.42	3.7	3.02	1.75	3.5	3.32	2.62	2.5	2.22	2.28
10	3.75	4.5	3.1	5.25	2.2	3.65	3.45	3.2	2.15	1.25	2.4	2.42
11	3.35	3.8	2.75	5.1	2.25	4.82	3.05	4.08	1.82	1.1	2.35	2.52
12	4.2	3.6	2.3	4.08	2.35	3.58	2.75	4.4	1.9	1.18	2.6	2.55
13	3.4	3.18	2.58	3.45	2.5	2.7	2.22	4.75	1.85	.95	2.55	2.62
14	5.0	3.18	2.9	3.88	2.18	2.12	2.28	5.45	2.15	....	2.3	2.72
15	6.35	2.9	3.65	4.8	1.78	1.78	2.95	6.48	2.02	....	2.52	2.6
16	4.3	2.6	5.15	5.7	1.85	1.8	3.08	7.72	2.3	....	2.42	2.65
17	5.35	2.95	4.65	4.5	1.82	3.1	3.18	10.8	2.3	2.75	2.55	2.75
18	4.45	2.9	3.5	3.58	1.92	3.92	3.7	15.6	2.2	2.8	2.75	2.8
19	4.1	2.7	4.05	3.18	2.05	3.42	4.05	18.5	2.25	4.65	2.8	2.62
20	3.65	2.55	4.0	2.88	1.92	5.78	4.95	17.0	2.48	7.12	3.05	2.52
21	3.05	2.65	5.95	2.68	1.85	4.7	6.75	13.7	3.85	12.75	3.18	2.42
22	3.85	3.5	5.9	2.58	1.98	3.6	10.0	8.9	4.42	8.4	3.2	2.35
23	7.9	2.32	4.05	2.7	1.85	3.9	12.5	7.68	3.9	6.5	2.55	2.22
24	12.3	2.35	3.25	2.58	1.42	3.65	10.3	6.08	3.38	5.05	2.55	2.3
25	8.35	2.5	4.3	2.52	1.8	3.42	8.0	4.85	3.22	4.6	2.35	2.18
26	6.9	2.55	3.8	2.55	2.35	3.35	7.75	4.08	3.15	4.12	2.22	2.12
27	6.0	2.75	4.25	2.42	3.0	6.6	6.65	4.18	2.5	3.9	2.15	2.02
28	8.85	4.12	4.9	2.32	3.5	3.5	7.48	4.18	1.9	3.8	2.1	2.02
29	9.4	....	4.6	2.88	3.45	2.55	5.35	4.65	2.12	3.85	2.05	2.12
30	7.68	....	8.3	2.85	1.7	2.42	3.7	4.95	1.98	3.92	1.92	4.75
31	6.3	....	11.3	....	1.55	....	3.4	4.02	....	3.75	....	10.7

Day	Jan.	Feb.	Mar.	Apr.	May	Day	Jan.	Feb.	Mar.	Apr.	May
1907						1907					
1	11.20	2.42	5.30	2.90	4.08	16	2.35	2.72	10.00	2.70	....
2	9.80	2.55	5.60	3.75	3.50	17	2.22	2.45	7.45	2.18	....
3	7.95	2.42	5.20	3.95	3.02	18	2.08	2.25	4.95	2.28	....
4	5.20	2.85	4.60	4.15	3.00	19	2.18	2.20	3.08	2.75	....
5	3.35	3.02	4.30	4.45	....	20	2.28	2.35	3.18	2.68	....
6	3.10	3.18	4.55	5.05	....	21	2.68	2.40	3.12	2.88	....
7	2.88	3.18	4.02	6.20	....	22	2.75	2.12	2.60	3.32	....
8	2.70	3.22	4.45	6.95	....	23	2.48	2.02	2.40	3.25	....
9	2.62	3.55	5.80	6.20	....	24	2.60	1.92	2.25	3.55	....
10	2.50	3.78	6.25	5.05	....	25	2.75	1.85	2.20	4.10	....
11	2.48	4.05	6.30	4.25	....	26	2.62	2.05	2.25	4.30	....
12	2.22	4.10	6.00	3.28	....	27	2.75	2.48	2.20	4.85	....
13	2.12	4.25	4.35	2.98	....	28	2.90	3.92	2.15	4.05	....
14	2.25	2.95	4.90	2.80	....	29	2.70	....	2.08	5.15	....
15	2.12	2.70	7.05	2.50	....	30	2.35	....	2.22	4.62	....
						31	2.15	....	2.28	....	....

Daily discharge, in second-feet, of Dan River at South Boston, Va., for 1906–7.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1906												
1	3,695	2,585	3,721	8,118	2,345	1,619	2,340	2,950	3,640	2,300	2,660	1,850
2	3,442	2,068	3,585	5,030	2,107	1,385	2,090	3,650	3,700	5,120	2,750	1,930
3	3,954	2,068	3,781	3,910	2,186	1,440	1,870	2,990	3,530	3,440	2,540	1,890
4	19,340	1,910	4,349	3,824	2,305	1,541	1,910	3,190	5,220	3,610	2,300	1,910
5	30,180	3,276	4,938	3,317	2,012	1,518	2,010	2,870	4,000	8,120	2,150	1,990
6	24.600	3,738	4,172	3,086	2,107	1,401	3,230	3,280	3,380	6,560	2,110	2,150
7	9,160	2,681	3,334	2,425	3,054	1,557	3,440	2,910	2,890	4,300	1,930	2,190
8	5,838	3,359	3,029	2,730	3,442	1,596	3,480	2,730	2,540	3,150	2,010	2,040
9	4,910	4,041	3,005	3,234	2,681	1,674	3,070	2,920	2,360	2,260	2,040	2,090
10	3,276	3,910	2,746	4,573	2,028	3,193	3,030	2,830	1,990	1,280	2,190	2,200
11	2,948	3,317	2,465	4,438	2,068	4,190	2,710	3,550	1,730	1,170	2,150	2,280
12	3,653	3,152	2,107	3,551	2,147	3,136	2,460	3,820	1,790	1,230	2,340	2,300
13	2,989	2,811	2,329	3,029	2,265	2,425	2,040	4,130	1,750	1,050	2,300	2,360
14	4,349	2,811	2,585	3,383	2,012	1,965	2,090	4,750	1,990	1,760	2,110	2,440
15	5,596	2,585	3,193	4,172	1,697	1,697	2,620	5,720	1,890	1,760	2,280	2,340
16	3,738	2,345	4,483	4,984	1,752	1,713	2,730	6,970	2,110	1,760	2,200	2,380
17	4,664	2,625	4,041	3,910	1,729	2,746	2,810	10,800	2,110	2,460	2,300	2,460
18	3,867	2,585	3,070	3,135	1,807	3,417	3,230	18,300	2,030	2,500	2,460	2,500
19	3,568	2,425	3,526	2,811	1,910	3,005	3,530	26,200	2,070	4,040	2,500	2,360
20	3,193	2,305	3,484	2,569	1,807	5,058	4,300	21,600	2,250	6,350	2,710	2,280
21	2,705	2,385	5,217	2,409	1,752	4,084	5,980	15,000	3,360	13,600	2,810	2,200
22	3,359	3,070	5,170	2,329	1,854	3,152	9,700	8,300	3,840	7,720	2,830	2,150
23	7,165	2,123	3,526	2,425	1,752	3,400	13,300	6,930	3,400	5,740	2,300	2,040
24	12,975	2,147	2,867	2,329	1,417	3,193	10,100	5,340	2,970	4,390	2,300	2,110
25	7,660	2,265	3,738	2,281	1,713	3,005	7,280	4,220	2,840	4,000	2,150	2,010
26	6,134	2,305	3,317	2,305	2,147	2,948	7,000	3,550	2,790	3,580	2,040	1,960
27	5,264	2,465	3,695	2,202	2,665	5,838	5,890	3,640	2,260	3,400	1,990	1,890
28	8,235	3,585	4,260	2,123	3,070	3,070	6,720	3,640	1,790	3,320	1,950	1,890
29	8,905	....	3,997	2,569	3,029	2,305	4,660	4,040	1,970	3,360	1,910	1,960
30	6,929	....	7,605	2,545	1,635	2,202	3,230	4,300	1,850	3,420	1,810	4,130
31	5,548	....	11,525	....	1,518	....	2,990	3,500	....	3,280	....	10,700

Day	Jan.	Feb.	Mar.	Apr.	May	Day	Jan.	Feb.	Mar.	Apr.	May
1907						1907					
1	11,400	2,200	4,620	2,580	3,550	16	2,150	2,440	9,700	2,420	....
2	9,420	2,300	4,890	3,280	3,070	17	2,040	2,220	6,690	2,010	....
3	7,220	2,200	4,530	3,440	2,680	18	1,930	2,070	4,300	2,090	....
4	4,530	2,540	4,000	3,610	2,665	19	2,010	2,030	2,730	2,460	....
5	2,950	2,680	3,740	3,870	....	20	2,090	2,150	2,810	2,410	....
6	2,750	2,810	3,950	4,390	....	21	2,410	2,190	2,760	2,570	....
7	2,570	2,810	3,500	5,450	....	22	2,460	1,960	2,340	2,920	....
8	2,420	2,840	3,870	6,180	....	23	2,250	1,890	2,190	2,870	....
9	2,360	3,110	5,080	5,450	....	24	2,340	1,810	2,070	3,110	....
10	2,260	3,300	5,500	4,390	....	25	2,460	1,750	2,030	3,570	....
11	2,250	3,530	5,550	3,700	....	26	2,360	1,910	2,070	3,740	....
12	2,040	3,570	5,260	2,890	....	27	2,460	2,250	2,030	4,220	....
13	1,960	3,700	3,780	2,650	....	28	2,580	3,420	1,990	3,530	....
14	2,070	2,620	4,260	2,500	....	29	2,420	....	1,930	4,480	....
15	1,960	2,420	6,280	2,260	....	30	2,150	....	2,040	4,010	....
						31	1,990	....	2,090	....	....

NOTE.—Discharge computed from a fairly well-defined rating curve.

Monthly discharge of Dan River at South Boston, Va., for 1900–1907.

[Drainage area, 2,750 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1900						
September	7,605	700	1,430	0.52	0.58	
October	6,500	1,200	1,842	.67	.77	
November	4,600	1,360	1,804	.66	.74	
December	15,110	2,075	2,785	1.01	1.16	
1901						
January	21,960	1,860	3,387	1.23	1.42	
February	2,675	1,600	2,042	.74	.77	
March	25,000	1,600	3,504	1.27	1.46	
April	38,800	2,375	6,382	2.32	2.59	
May	45,600	2,300	7,297	2.65	3.06	
June	3,100	1,925	2,292	.83	.93	
July	41,200	2,150	6,132	2.23	2.58	
August	36,600	1,860	9,866	3.59	4.14	
September	5,100	2,150	2,902	1.06	1.18	
October	4,100	1,860	2,353	.86	.99	
November	3,730	1,730	2,032	.74	.83	
December	51,200	2,000	6,875	2.50	2.89	
The year	51,200	1,600	4,589	1.67	22.84	
1902						
January	30,000	2,675	4,738	1.72	1.98	
February	26,760	2,930	7,105	2.58	2.69	
March	26,120	3,730	7,269	2.64	3.04	
April	8,640	3,730	4,834	1.76	1.96	
May	4,450	3,100	3,876	1.41	1.63	
June	20,610	2,150	3,535	1.29	1.44	
July	3,775	1,075	1,713	.62	.71	
August	1,480	1,050	1,197	.44	.51	
September	3,415	900	1,545	.56	.62	
October	7,550	1,250	3,158	1.15	1.33	
November	2,525	1,420	1,842	.67	.75	
December	13,460	2,150	4,186	1.52	1.75	
The year	30,000	900	3,750	1.36	18.41	
1903						
January	27,160	2,665	5,628	2.05	2.36	
February	38,300	3,400	9,408	3.42	3.56	
March	42,570	3,653	9,545	3.47	4.00	
April	21,110	4,755	7,521	2.73	3.05	
May	8,780	2,465	3,869	1.41	1.63	
June	16,400	2,345	5,456	1.98	2.21	
July	15,500	1,479	4,190	1.52	1.75	
August 1–19 and 27	6,254	1,401	2,774	1.01	.751	
September 2, 14 and 18–30	7,715	1,362	2,090	.760	.424	
October	3,358	1,168	1,553	.565	.651	
November	3,884	1,362	1,811	.659	.735	
December	6,184	1,386	1,803	.656	.756	

Monthly discharge of Dan River at South Boston, Va., for 1900–1907—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1904						
January	2,665	750	1,663	0.605	0.697	
February	11,170	1,518	3,235	1.18	1.27	
March	9,290	1,596	2,847	1.04	1.20	
April	2,868	1,323	1,663	.605	.675	
May	7,275	1,091	1,999	.727	.838	
June	4,755	976	2,147	.781	.871	
July	5,548	824	1,877	.683	.788	
August	11,310	876	2,898	1.05	1.21	
September	10,750	1,029	2,248	.818	.913	
October	1,417	375	783	.285	.329	
November	2,569	608	1,233	.448	.500	
December	4,510	1,245	1,953	.710	.819	
The year	11,310	375	2,045	.744	10.11	
1905						
January	13,370	1,006	3,004	1.09	1.26	
February	18,270	1,052	4,563	1.66	1.73	
March	5,730	1,713	2,635	.958	1.10	
April	11,990	1,541	3,992	1.45	1.62	
May	17,160	1,729	4,845	1.76	2.03	
June	6,720	1,230	1,867	.679	.758	
July	10,400	1,440	3,927	1.43	1.65	
August	10,820	1,385	3,382	1.23	1.42	
September	6,214	1,076	1,709	.621	.693	
October	3,568	937	1,463	.532	.613	
November	1,635	976	1,337	.486	.542	
December	17,720	1,401	5,020	1.83	2.11	
The year	18,270	937	3,145	1.14	15.53	
1906						
January	30,200	2,700	7,160	2.60	3.00	
February	4,040	1,910	2,750	.999	1.04	
March	11,500	2,110	3,960	1.44	1.66	
April	8,120	2,120	3,320	1.21	1.35	
May	3,440	1,420	2,130	.774	.89	
June	5,840	1,380	2.650	.963	1.07	
July	13,300	1,870	4,250	1.55	1.79	
August	26,200	2,730	6.410	2.33	2.69	
September	5,220	1,730	2,670	.971	1.08	
October	13,600	1.050	3,870	1.41	1.63	
November	2,830	1,810	2,270	.825	.92	
December	10.700	1,850	2,480	.902	1.04	
The year	30,200	1,050	3,660	1.33	18.16	
1907						
January	11.400	1,930	3,040	1.11	1.28	B.
February	3,700	1,750	2,530	.920	.96	B.
March	9,700	1,930	3,830	1.39	1.60	B.
April	6.180	2,010	3,430	1.25	1.40	B.

NOTE.—Estimates for 1906 are good.

NEW RIVER BASIN.

SOUTH FORK OF NEW RIVER NEAR CRUMPLER, N. C.

Location.—About 1.6 miles above confluence of North and South forks of New River and about 4 miles from Crumpler.

Drainage area.—325 square miles.

Records available.—August 12, 1908, to December 31, 1914.

Gage.—Chain attached to trees on left bank about one-fourth mile above a ford.

Discharge measurements.—Made from a boat at a section about one-half mile below gage, or by wading at a section about 500 feet below.

Channel and control.—Practically permanent.

Extremes of stage.—Maximum stage observed: 7.1 feet at 7 a. m., October 24, 1908. Minimum stage observed: 0.87 foot, August 22-25, 1911.

Winter flow.—Discharge relation rarely affected by ice.

Accuracy.—Gage-height record very reliable.

Data insufficient for estimating discharge.

Discharge measurements of South Fork of New River near Crumpler, N. C., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
Aug. 12...	O'Neill and Chapman	1.48	458
1909			
June 18 ...	H. J. Jackson......	2.02	1,060
1910			
Nov. 1...	C. T. Bailey........	1.33	420
1911			
July 24...	Horton and Bailey.	.94	232
1913			
Dec. 16...	Peterson and Walters.	1.31	387
1914			
Oct. 11...	Mathers and Morgan	1.00	214
Oct. 12...	.....do	.98	217

Daily gage height, in feet, of South Fork of New River near Crumpler, N. C., for 1908–1914.

[J. J. Garvey, observer.]

Day	Aug.	Sept.	Oct.	Nov.	Dec.	Day	Aug.	Sept.	Oct.	Nov.	Dec.
1908						1908					
1	....	1.73	1.46	2.27	1.69	16	1.62	1.50	1.53	1.72	1.66
2	....	1.72	1.40	2.16	1.77	17	1.61	1.48	1.49	1.70	1.64
3	....	1.68	1.40	2.08	1.64	18	1.62	1.48	1.38	1.76	1.65
4	....	1.66	1.39	2.02	1.57	19	1.52	1.46	1.38	1.78	1.65
5	....	1.68	1.38	1.96	1.57	20	1.55	1.44	1.38	1.73	1.63
6	....	1.82	1.38	1.86	1.57	21	1.56	1.44	1.38	1.68	1.58
7	....	1.85	1.38	1.78	2.42	22	1.80	1.43	1.48	1.68	1.65
8	....	1.96	1.36	1.78	2.37	23	1.78	1.43	3.93	1.68	1.85
9	....	1.76	1.51	1.78	1.97	24	2.00	1.42	6.23	1.66	1.73
10	....	1.64	2.73	1.75	1.78	25	2.60	1.42	3.08	1.68	1.76
11	....	1.58	2.18	1.83	1.71	26	3.88	1.40	2.46	1.68	1.95
12	1.48	1.58	1.73	1.78	1.86	27	2.62	1.40	2.23	1.68	1.84
13	1.47	1.53	1.64	1.73	1.81	28	2.23	1.73	2.32	1.64	1.76
14	1.49	1.50	1.56	1.74	1.73	29	2.10	1.68	3.03	1.57	1.83
15	1.51	1.48	1.55	1.75	1.69	30	1.96	1.53	2.93	1.57	1.85
						31	1.82	....	2.44	....	2.15

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	2.12	1.55	1.89	1.82	2.50	2.08	2.12	1.80	1.31	1.30	1.29	1.18
2	1.93	2.02	1.84	1.74	2.12	2.00	2.12	1.92	1.29	1.30	1.28	1.18
3	1.83	1.91	1.85	1.81	1.82	2.22	1.86	1.97	1.26	1.30	1.28	1.21
4	1.82	1.80	1.88	1.74	1.76	3.92	1.82	1.78	1.32	1.32	1.27	1.21
5	2.42	1.73	1.80	1.72	1.73	2.92	1.78	1.72	1.40	1.32	1.27	1.21
6	2.49	1.80	1.87	1.66	1.70	2.64	1.75	1.69	1.39	1.34	1.27	1.20
7	2.05	1.67	2.05	1.68	1.66	2.28	2.06	1.61	1.32	1.30	1.27	1.53
8	1.95	1.60	1.95	1.70	1.66	2.15	1.96	1.59	1.30	1.30	1.27	1.74
9	1.87	1.65	1.87	1.74	1.64	2.38	1.86	1.52	1.34	1.30	1.27	1.56
10	1.83	2.29	2.06	1.67	3.61	2.15	1.84	1.50	1.45	1.28	1.50	1.39
11	1.78	2.17	2.07	1.60	2.87	2.04	1.77	1.50	1.40	2.33	1.45	1.32
12	1.76	1.87	1.91	1.55	2.36	2.42	1.72	1.58	1.34	2.57	1.35	1.46
13	1.72	1.77	1.87	2.57	2.04	2.04	1.70	1.52	1.30	1.76	1.30	2.02
14	1.71	1.71	1.87	3.34	1.95	2.02	1.69	1.48	1.26	1.60	1.28	2.42
15	1.77	1.78	1.86	2.42	1.82	1.96	1.67	1.65	1.25	1.66	1.27	1.75
16	1.97	2.43	1.77	2.12	1.76	1.92	1.60	2.08	1.47	1.68	1.27	1.66
17	2.25	2.31	1.72	1.96	1.80	2.35	1.56	1.86	1.60	1.51	1.29	1.68
18	2.01	2.01	1.72	1.88	1.77	2.06	1.52	1.68	1.62	1.48	1.28	1.44
19	1.89	2.01	1.69	1.86	1.68	1.92	1.52	1.60	1.46	1.42	1.26	1.39
20	1.81	2.83	1.67	1.79	2.40	1.87	1.50	1.49	1.43	1.38	1.23	1.38
21	1.77	2.19	1.78	1.76	6.54	1.86	1.48	1.46	1.42	1.38	1.23	1.36
22	1.73	2.09	1.90	1.75	3.88	1.84	1.50	1.43	1.72	1.37	1.22	1.41
23	1.69	2.05	1.73	1.76	2.94	1.88	1.51	1.41	1.96	1.37	1.34	1.30
24	1.67	2.19	1.70	1.74	2.62	1.88	1.54	1.38	1.72	1.38	1.28	1.31
25	1.67	2.38	2.11	1.69	2.48	1.89	1.47	1.36	1.66	1.40	1.25	1.51
26	1.72	2.17	2.16	1.68	2.44	1.94	1.47	1.34	1.47	1.33	1.24	1.51
27	1.77	2.03	1.94	1.66	2.78	1.97	1.68	1.36	1.44	1.32	1.20	1.28
28	1.65	1.94	2.14	1.66	2.34	1.84	1.90	1.34	1.34	1.30	1.18	1.54
29	1.67	....	2.26	1.70	2.22	2.10	1.84	1.32	1.33	1.32	1.18	2.26
30	1.65	....	1.96	1.81	2.15	2.00	1.56	1.33	1.33	1.32	1.18	2.10
31	1.65	....	1.90	....	2.08	....	1.64	1.32	....	1.30	....	1.96

Daily gage height, in feet, of South Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
1	2.10	1.53	2.12	1.28	1.28	1.18	1.43	1.30	3.38	1.40	1.33	1.22
2	2.09	1.37	2.14	1.30	1.24	1.17	1.42	1.32	2.32	1.35	1.33	1.45
3	1.80	1.50	1.91	1.33	1.22	1.15	1.38	1.30	1.86	1.30	1.34	1.34
4	1.67	1.44	1.75	1.30	1.30	1.14	1.60	1.46	1.76	1.30	1.30	1.42
5	1.58	1.56	1.68	1.76	1.18	1.28	1.92	1.32	1.76	1.32	1.30	1.44
6	1.44	1.52	1.68	1.22	1.15	1.46	1.75	1.26	1.77	1.68	1.30	2.07
7	2.20	1.28	1.64	1.21	1.23	1.38	1.78	1.28	1.59	2.82	1.30	1.98
8	1.97	1.41	1.54	1.21	1.66	1.22	1.69	1.30	1.50	2.82	1.28	1.64
9	1.76	1.38	1.50	1.20	1.80	1.26	1.64	1.30	1.49	2.52	1.26	1.54
10	1.74	1.32	1.50	1.20	1.57	1.55	1.60	1.32	1.44	2.04	1.25	1.56
11	1.52	1.46	1.52	1.20	1.43	1.40	1.56	1.22	1.41	1.79	1.24	1.34
12	1.53	1.26	1.51	1.26	1.34	2.96	2.12	1.15	1.48	1.68	1.24	1.52
13	1.48	1.42	1.46	1.48	1.40	2.56	1.78	1.20	1.42	1.62	1.24	1.30
14	1.46	1.66	1.48	1.38	1.36	2.52	1.64	1.20	1.39	1.54	1.30	1.16
15	1.39	1.74	1.42	1.33	1.30	2.74	1.54	1.22	1.38	1.50	1.28	1.36
16	1.42	1.65	1.39	1.44	1.30	2.18	1.46	1.22	1.35	1.48	1.28	1.32
17	1.32	1.95	1.40	1.48	1.30	1.92	1.96	1.20	1.30	1.44	1.20	1.27
18	1.40	2.96	1.38	1.48	1.34	1.79	1.78	1.17	1.28	1.42	1.23	1.38
19	1.38	2.06	1.38	1.42	1.32	1.68	1.56	1.20	1.26	1.43	1.20	1.43
20	1.35	1.88	1.38	1.36	1.31	1.57	1.44	1.20	1.25	1.74	1.20	1.34
21	1.88	1.79	1.43	1.34	1.33	1.60	1.41	1.24	1.26	1.70	1.19	1.23
22	1.94	1.76	1.39	1.32	1.56	1.63	1.38	1.34	1.22	1.50	1.20	1.16
23	1.66	1.70	1.34	1.28	1.34	1.52	1.36	1.30	1.20	1.45	1.20	1.42
24	1.48	1.64	1.32	1.33	1.42	1.62	1.32	1.28	1.20	1.35	1.20	1.70
25	1.52	1.58	1.31	1.36	1.60	1.73	1.33	1.22	1.30	1.32	1.28	1.54
26	1.40	1.48	1.31	1.47	1.61	1.69	1.32	1.26	1.64	1.34	1.24	1.51
27	1.46	1.46	1.32	1.44	1.44	1.54	1.30	1.30	1.50	1.33	1.23	1.38
28	1.42	1.94	1.31	1.38	1.33	1.50	1.38	1.23	1.64	1.38	1.30	1.38
29	1.36	....	1.30	1.34	1.30	1.56	1.46	1.18	1.42	1.40	1.28	1.44
30	1.36	....	1.31	1.31	1.22	1.54	1.39	1.30	1.44	1.34	1.24	1.63
31	1.38	....	1.28	....	1.20	......	1.32	2.10	....	1.33	....	1.60
1911												
1	1.73	1.40	1.29	1.55	1.72	1.40	1.03	1.14	1.87	1.04	1.20	1.26
2	2.05	1.39	1.30	1.52	1.70	1.39	1.00	1.02	1.47	1.07	1.18	1.28
3	2.48	1.38	1.29	1.48	1.61	1.36	1.00	1.29	1.36	1.10	1.15	1.28
4	2.61	1.38	1.27	1.56	1.58	1.32	.98	1.47	1.20	1.14	1.14	1.21
5	2.07	1.38	1.24	2.62	1.54	1.32	1.16	1.39	1.12	1.20	1.14	1.18
6	1.83	1.36	1.52	2.70	1.52	1.42	1.26	1.44	1.15	1.14	1.34	1.22
7	1.69	1.38	2.02	2.18	1.48	1.40	1.16	1.42	1.16	1.08	1.66	1.25
8	1.62	1.48	2.02	2.28	1.46	1.42	1.42	1.26	1.10	1.08	1.54	1.21
9	1.50	1.82	2.26	2.10	1.50	1.33	1.26	1.24	1.08	1.06	1.50	1.19
10	1.42	1.84	2.04	1.93	1.48	1.28	1.22	1.06	1.18	1.10	1.48	1.17
11	1.48	1.68	1.84	1.78	1.46	1.28	1.22	1.00	1.20	1.20	1.40	1.22
12	1.48	1.56	1.76	1.91	1.46	1.26	1.16	.96	1.26	1.26	1.38	1.24
13	1.42	1.52	1.60	2.46	1.54	1.22	1.16	.98	1.14	1.18	1.54	1.25
14	1.42	1.50	1.58	2.88	1.72	1.20	1.12	1.09	1.04	1.10	1.50	1.24
15	1.41	1.45	1.54	2.52	1.62	1.16	1.40	1.13	1.02	1.16	1.44	1.32
16	1.36	1.44	1.46	2.36	1.50	1.12	1.17	1.00	1.00	1.04	1.38	1.56
17	1.31	1.40	1.42	2.11	1.42	1.12	1.65	.97	1.00	1.54	1.36	1.68
18	1.40	1.38	1.42	1.96	1.40	1.12	1.05	.96	1.00	3.71	1.38	1.48
19	1.36	1.37	1.45	2.00	1.40	1.15	1.00	.96	.99	2.29	1.41	1.36
20	1.36	1.45	1.50	2.09	1.40	1.26	.98	.96	.98	1.81	1.38	1.32
21	1.37	1.41	1.46	1.94	1.40	1.20	1.06	.92	2.29	1.56	1.36	1.54
22	1.44	1.38	1.40	1.84	1.39	1.18	1.02	.87	1.89	1.52	1.32	2.09
23	1.49	1.34	1.41	1.76	1.40	1.14	.97	.87	1.63	1.54	1.30	2.35
24	1.44	1.28	1.36	1.71	1.40	1.20	.96	.87	1.49	1.48	1.34	2.08
25	1.39	1.28	1.36	1.68	1.36	1.20	.95	.87	1.42	1.36	1.32	1.96

Daily gage height, in feet, of South Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
26	1.38	1.28	1.38	1.66	1.32	1.14	.91	.92	1.32	1.28	1.30	1.80
27	1.36	1.30	1.96	1.61	1.30	1.32	.86	1.26	1.26	1.29	1.30	1.83
28	1.34	1.29	1.88	1.60	1.30	1.13	.88	1.18	1.17	1.28	1.30	1.76
29	1.34	....	1.70	1.62	1.30	1.11	.89	1.35	1.11	1.26	1.30	1.66
30	1.54	....	1.61	1.67	1.28	1.10	.90	1.60	1.08	1.23	1.29	1.54
31	1.52	....	1.59	....	1.32	....	.92	1.94	....	1.21	....	1.71
1912												
1	1.8	1.48	1.65	2.0	1.7	1.48	1.40	1.48	1.10	1.35	1.17	1.28
2	1.7	1.42	1.6	2.25	1.65	1.55	1.42	1.40	1.10	1.31	1.20	1.30
3	1.55	1.44	1.65	2.15	1.6	1.6	1.55	1.36	1.10	1.28	1.18	1.30
4	1.43	1.34	1.6	1.95	1.55	1.65	1.48	1.40	1.09	1.24	1.16	1.28
5	1.38	1.36	1.65	1.85	1.6	1.5	1.6	1.42	1.06	1.22	1.15	1.32
6	1.30	1.7	1.7	1.8	1.65	1.65	1.85	1.40	1.12	1.20	1.14	1.38
7	2.05	1.65	1.7	1.8	1.6	1.7	1.65	1.34	1.23	1.20	1.95	1.44
8	2.0	1.75	1.8	1.8	1.55	1.6	1.5	1.30	1.48	1.18	2.25	1.35
9	2.1	1.6	1.85	1.75	1.49	1.5	1.48	1.46	1.39	1.18	1.65	1.28
10	2.0	1.55	1.75	1.7	1.47	1.44	1.5	1.48	1.23	1.15	1.45	1.25
11	2.0	1.6	1.7	1.65	1.5	1.41	1.55	1.44	1.08	1.14	1.36	1.21
12	1.9	1.46	1.75	1.65	2.7	1.39	2.0	1.34	1.10	1.14	1.32	1.18
13	1.8	1.55	2.0	1.65	2.5	1.38	1.75	1.30	1.22	1.14	1.30	1.31
14	1.65	1.49	2.0	1.6	2.05	1.55	1.7	1.28	1.32	1.29	1.39	1.28
15	1.75	1.36	3.0	1.6	1.9	1.7	1.7	1.28	1.34	1.40	1.34	1.22
16	1.75	1.47	3.1	1.6	2.2	1.75	1.55	1.32	1.30	1.36	1.30	1.34
17	1.8	1.55	2.6	1.6	2.4	1.55	1.55	1.28	1.28	1.26	1.26	1.24
18	1.95	1.48	2.15	1.7	2.05	1.46	1.6	1.28	1.22	1.18	1.22	1.20
19	2.15	1.38	2.0	1.55	1.85	1.35	1.9	1.27	1.19	1.22	1.21	1.22
20	2.15	1.41	1.9	1.55	1.75	1.30	2.15	1.34	1.26	1.25	1.20	1.21
21	2.05	1.85	1.8	1.5	1.7	1.30	1.95	1.36	1.18	1.24	1.18	1.19
22	1.9	2.9	1.75	1.75	1.65	1.30	1.8	1.29	1.13	1.30	1.18	1.19
23	1.8	1.95	1.7	1.8	1.6	1.33	1.7	1.24	2.05	1.37	1.18	1.24
24	1.8	1.85	2.0	1.7	1.6	1.32	1.6	1.18	2.3	1.34	1.18	1.25
25	1.7	1.8	2.1	1.6	1.55	1.95	1.6	1.17	1.7	1.26	1.18	1.20
26	1.5	1.9	1.9	1.55	1.55	1.65	1.6	1.17	1.5	1.20	1.18	1.38
27	1.44	2.15	1.8	1.75	1.5	1.55	1.5	1.17	1.7	1.18	1.14	1.5
28	1.30	2.0	1.75	1.7	1.5	1.5	1.43	1.14	1.6	1.15	1.24	1.38
29	1.49	1.85	2.7	1.7	1.8	1.42	1.4	1.14	1.5	1.15	1.42	1.40
30	1.75	....	2.5	1.75	1.6	1.5	1.85	1.12	1.37	1.15	1.37	1.7
31	1.65	....	2.1	....	1.55	....	1.65	1.11	....	1.14	....	1.7
1913												
1	1.5	1.45	1.8	2.1	1.7	1.81	1.38	1.28	1.20	1.55	1.46	1.75
2	1.30	1.41	1.65	2.0	1.7	1.75	1.5	1.30	1.20	1.44	1.43	1.9
3	1.34	1.36	1.5	1.95	1.65	1.85	1.48	1.28	1.18	1.38	1.42	1.65
4	1.65	1.5	1.46	1.9	1.6	2.0	1.8	1.25	1.7	1.36	1.41	1.5
5	1.41	1.43	1.42	1.8	1.6	1.8	1.6	1.20	2.6	1.33	1.39	1.46
6	1.42	1.37	1.38	1.8	1.6	1.75	1.48	1.95	1.9	1.30	1.38	1.43
7	1.40	1.32	1.32	1.75	1.6	1.7	1.36	1.34	1.5	1.30	1.38	1.48
8	1.41	1.25	1.32	1.75	1.8	1.8	1.30	1.48	1.40	1.30	1.40	1.55
9	1.34	1.34	1.34	1.8	1.8	2.0	1.30	1.46	1.37	1.33	1.85	1.55
10	1.30	1.40	1.44	1.7	1.6	1.75	1.28	1.42	1.36	1.38	1.7	1.5
11	1.29	1.35	1.55	2.35	1.6	1.65	1.29	1.38	1.32	1.36	1.6	1.55
12	1.30	1.34	1.48	3.1	1.55	1.75	1.38	1.30	1.28	1.35	1.46	1.5
13	1.40	1.38	1.44	3.6	1.55	1.75	1.36	1.48	1.26	1.30	1.40	1.55
14	1.31	1.26	3.6	2.6	1.5	1.6	1.32	1.5	1.25	1.28	1.42	1.48
15	1.28	1.26	3.9	2.45	1.55	1.6	1.30	1.42	1.24	1.24	1.42	1.34
16	1.21	1.26	3.2	2.45	1.7	1.55	1.28	1.36	1.41	1.24	1.44	1.32
17	1.25	1.29	2.4	2.25	1.9	1.49	1.26	1.28	1.65	1.24	1.47	1.29
18	1.26	1.26	2.05	2.1	1.9	1.49	1.24	1.36	1.6	1.26	1.42	1.30
19	1.30	1.20	1.95	2.05	1.7	1.55	1.22	1.40	1.6	1.32	1.41	1.29
20	1.28	1.34	1.8	1.95	1.7	1.65	1.22	1.71	2.05	1.75	1.38	1.28

Daily gage height, in feet, of South Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
21	1.24	1.55	1.95	1.9	1.75	1.65	1.20	1.68	3.4	1.75	1.36	1.27
22	1.23	1.6	2.1	1.85	2.0	1.5	1.18	1.56	2.5	1.5	1.34	1.27
23	1.22	1.48	1.85	1.8	2.4	1.48	1.22	1.52	1.9	1.44	1.34	1.29
24	1.24	1.40	1.8	1.8	4.0	1.8	1.26	1.45	1.6	2.0	1.34	1.34
25	1.33	1.32	1.75	1.8	2.8	1.48	1.28	1.40	1.55	2.8	1.31	1.42
26	1.37	1.30	2.2	1.75	2.1	1.55	1.32	1.34	1.5	2.15	1.29	1.75
27	1.75	1.6	6.1	1.85	2.4	1.46	1.34	1.26	1.47	1.75	1.28	1.65
28	2.0	2.0	3.9	1.8	2.6	1.44	1.38	1.21	1.44	1.65	1.28	1.45
29	1.75	....	2.8	1.75	2.15	1.41	1.40	1.19	1.44	1.6	1.28	1.44
30	1.55	....	2.4	1.7	1.95	1.38	1.39	1.47	1.6	1.55	1.30	1.47
31	1.48	......	2.3	....	1.9	....	1.34	1.20	....	1.48	....	1.48
1914												
1	1.5	2.6	1.65	1.95	1.7	1.33	1.05	1.04	1.07	0.98	1.22	4.0
2	1.44	1.95	1.65	1.85	1.6	1.30	1.35	1.02	1.04	.98	1.20	4.3
3	1.47	1.75	1.49	1.8	1.55	1.28	1.45	1.01	1.06	.98	1.20	3.4
4	1.5	1.7	1.8	1.7	1.55	1.24	1.26	1.16	1.01	1.02	1.20	3.7
5	1.55	1.65	1.8	1.65	1.8	1.30	1.29	1.06	1.02	1.38	1.20	4.9
6	1.49	1.9	1.7	1.6	1.9	1.7	1.38	1.04	.99	1.40	1.19	3.5
7	1.42	2.3	1.65	1.55	1.85	1.8	1.24	1.03	.93	1.18	1.18	2.8
8	1.44	2.05	1.65	1.8	1.7	1.6	1.22	1.00	.96	1.10	1.16	2.5
9	1.55	1.9	1.55	1.9	1.65	1.44	1.16	1.00	1.04	1.10	1.24	2.35
10	1.85	1.75	1.5	1.7	1.65	1.55	1.5	1.10	1.03	1.06	1.20	2.15
11	1.75	1.7	1.6	1.7	1.6	1.55	1.30	1.08	1.06	1.02	1.20	2.05
12	1.75	1.65	1.8	1.6	1.55	1.36	1.18	1.16	1.18	1.00	1.16	1.95
13	1.5	1.65	1.9	1.6	1.55	1.39	1.16	1.24	1.22	1.00	1.14	1.95
14	1.5	1.9	1.75	1.7	1.5	1.30	1.16	1.20	1.10	1.16	1.16	1.9
15	1.7	1.5	1.7	3.0	1.49	1.30	1.40	1.18	1.04	1.95	2.4	2.1
16	1.5	1.65	1.7	2.45	1.46	1.27	1.8	1.09	1.00	4.7	2.35	1.8
17	1.5	1.6	1.7	2.2	1.44	1.20	1.6	1.06	1.08	2.45	2.0	1.8
18	1.42	1.75	1.8	2.0	1.44	1.20	1.5	1.02	1.32	1.8	1.6	1.85
19	1.42	2.0	1.85	1.95	1.45	1.32	1.38	.99	1.40	1.65	1.48	1.8
20	1.41	2.3	1.8	2.05	1.44	1.39	1.32	.96	1.25	1.55	1.40	1.9
21	1.42	2.35	1.7	1.95	1.40	1.30	1.21	1.00	1.14	1.46	1.30	2.0
22	1.40	2.05	1.65	1.9	1.40	1.20	1.11	1.08	1.08	1.40	1.47	1.95
23	1.45	1.8	1.6	1.8	1.40	1.19	1.07	.98	1.07	1.36	1.55	1.85
24	1.42	1.9	1.6	1.75	1.38	1.16	1.06	.90	1.04	1.55	1.49	1.7
25	1.48	1.8	1.55	1.7	1.35	1.15	1.02	.92	1.07	1.5	1.36	2.3
26	1.6	1.75	1.5	1.7	1.34	1.16	1.02	1.16	1.04	1.45	1.38	2.7
27	1.5	1.7	1.6	1.6	1.32	1.16	1.20	1.18	1.04	1.40	1.32	2.45
28	1.42	1.7	1.5	1.6	1.30	1.10	1.11	1.85	.98	1.30	1.33	2.05
29	1.41	....	1.65	1.6	1.31	1.05	1.09	1.8	.98	1.26	1.37	2.05
30	1.40	....	1.7	1.65	1.42	1.02	1.04	1.46	.98	1.24	2.6	2.2
31	3.0	....	1.85	....	1.38	....	1.06	1.22	....	1.24	....	2.0

NOTE.—Ice in stream on following dates:
1909: Dec. 10-31, ice about 0.75 foot thick Dec. 31.
1910: Jan. 1-11, and during December.
1911: Slush ice reported Feb. 23.
1912: Jan. 5-29, ice from 4 to 12 inches thick: Feb. 3-17, ice from 4 to 5 inches thick.
1913: Feb. 9-17.
1914: Jan. 13-16 and Feb. 14-17.

NEW RIVER NEAR GRAYSON, VA.

Location.—At Norfolk & Western Railway bridge at Fries Junction, immediately above mouth of Chestnut Creek, and one mile above Grayson.

Drainage area.—1,160 square miles.

Records available.—August 7, 1908, to December 31, 1912. Station discontinued January 4, 1913, because of backwater from Appalachian Power Co.'s dam No. 2.

Gage.—Chain attached to railroad bridge; read twice daily.

Discharge measurements.—Made from railroad bridge.

Channel and control.—River at measuring section is wide; irregular rocky bottom; current rough and rapid. Control practically permanent.

Extremes of discharge.—Maximum stage observed: 10.0 feet at 6 P. M., May 21, 1909. Minimum stage observed: 2.98 feet at 7 A. M., August 25, 1911.

Winter flow.—Discharge relation seldom if ever affected by ice.

Regulation.—Operation of a cotton mill about 4 miles above station affected natural flow during low water.

Accuracy.—Accurate discharge measurements difficult to obtain because of irregular channel.

Data insufficient for estimating discharge.

Discharge measurements of New River near Grayson, Va.

Date	Made by	Gage height	Dis-charge
		Feet	*Sec.-ft.*
1908			
Aug. 6...	O'Neill and Chapman	4.70	3,170
Aug. 19...	W. M. O'Neill......	4.11	1,920
1909			
June 14 ...	H. J. Jackson......	4.74	3,110
June 21 ...	.....do	4.45	2,390
1910			
Mar. 17...	C. T. Bailey........	3.96	1,480
Oct. 22...	.....do	4.00	1,470
1911			
July 21...	C. T. Bailey	3.69	[a] 872
1912			
Sept. 25..	Bailey and Carr....	4.62	3,070

[a] Measurement made at Grayson and inflow of Chestnut and Brush creeks, determined by floats, deducted, to obtain flow at gaging station at Fries Junction.

Daily gage height, in feet, of New River near Grayson, Va., for 1908–1912.

[Wm. J. Matkins and Oscar Williams, observers.]

Day	Aug.	Sept.	Oct.	Nov.	Dec.	Day	Aug.	Sept.	Oct.	Nov.	Dec.
1908						1908					
1	....	4.19	4.02	5.22	4.28	16	4.05	3.94	3.99	4.38	4.52
2	....	4.15	3.98	4.98	4.27	17	4.25	3.90	3.98	4.35	4.37
3	....	4.11	3.95	4.76	4.18	18	4.10	3.90	3.89	4.38	4.32
4	....	4.09	3.88	4.76	4.18	19	4.10	3.90	3.88	4.46	4.46
5	....	4.08	3.80	4.56	4.22	20	4.05	3.90	3.88	4.46	4.37
6	5.04	4.35	3.80	4.50	4.30	21	3.92	3.89	3.88	4.36	4.29
7	4.16	4.32	3.80	4.40	5.23	22	4.01	3.88	3.96	4.33	4.30
8	4.18	4.60	3.80	4.36	6.18	23	4.32	3.88	5.06	4.32	4.46
9	4.14	4.22	3.94	4.35	5.26	24	4.25	3.87	9.20	4.28	4.41
10	4.16	4.11	5.52	4.34	4.83	25	5.30	3.87	6.38	4.27	4.37
11	4.23	4.02	5.30	4.33	4.66	26	6.85	3.87	5.36	4.24	4.62
12	4.24	4.00	4.48	4.35	4.78	27	5.55	3.87	4.88	4.22	4.72
13	3.99	3.99	4.20	4.34	4.83	28	4.82	4.00	4.80	4.20	4.65
14	4.44	3.98	4.07	4.33	4.66	29	4.62	4.20	5.58	4.21	4.60
15	4.00	3.95	4.00	4.33	4.63	30	4.52	4.12	6.53	4.18	4.79
						31	4.35	....	5.68	....	5.24

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	5.32	4.07	4.64	4.64	5.27	4.67	4.74	4.40	3.80	3.75	3.45	3.78
2	5.47	4.35	4.54	4.58	5.25	4.55	4.62	4.66	3.76	3.74	3.80	3.79
3	4.81	4.57	4.46	4.48	4.80	4.63	4.54	4.62	3.76	3.70	3.79	3.79
4	4.65	4.51	4.52	4.46	4.65	6.55	4.40	4.46	3.78	3.74	3.79	3.74
5	5.32	4.37	4.52	4.42	4.55	6.43	4.30	4.35	3.82	3.80	3.79	3.68
6	6.15	4.47	4.54	4.34	4.49	5.47	4.30	4.26	3.88	3.76	3.79	3.67
7	5.37	4.39	4.84	4.26	4.41	5.11	4.39	5.30	3.88	3.79	3.78	3.75
8	4.99	4.32	4.88	4.26	4.34	4.85	4.98	4.10	3.85	3.78	3.79	4.12
9	4.87	4.27	4.80	4.31	4.25	4.80	4.69	4.06	3.86	3.75	3.45	4.15
10	4.69	5.29	4.76	4.28	5.00	5.00	4.52	4.00	3.85	3.72	3.85	3.88
11	4.63	5.61	4.76	4.23	5.65	4.73	4.42	3.98	3.85	4.24	3.90	3.68
12	4.55	4.92	4.72	4.20	4.93	4.60	4.30	4.01	3.80	5.55	3.91	3.79
13	4.45	4.65	4.70	4.70	4.60	4.67	4.30	4.00	3.78	4.55	3.80	4.25
14	4.42	4.54	4.66	6.47	4.47	4.85	4.30	4.05	3.78	4.09	3.79	4.91
15	4.43	4.47	4.58	5.50	4.41	4.65	4.26	4.30	3.76	4.08	3.78	4.60
16	4.55	4.82	4.50	4.95	4.36	4.56	4.17	4.68	3.75	4.26	3.79	4.18
17	5.39	5.01	4.46	4.75	4.31	4.40	4.12	4.69	4.04	4.18	3.81	3.98
18	5.15	4.78	4.43	4.60	4.25	4.38	4.10	4.36	4.04	4.06	3.73	3.91
19	4.95	4.70	4.37	4.47	4.23	4.59	4.06	4.14	4.01	3.96	3.70	3.90
20	4.75	4.98	4.34	4.45	4.30	4.51	4.02	4.05	3.85	3.92	3.74	3.93
21	4.61	4.86	4.40	4.44	9.10	4.44	3.98	3.99	3.86	3.95	3.72	3.74
22	4.55	4.91	4.51	4.40	7.63	4.35	3.96	3.94	3.91	3.92	3.73	3.68
23	4.47	5.06	4.47	4.37	5.87	4.32	4.01	3.89	4.18	3.96	3.75	3.68
24	4.45	5.11	4.42	4.31	4.40	4.42	4.03	3.88	4.28	3.98	3.78	3.75
25	4.42	5.34	4.58	4.26	5.15	4.49	4.02	3.87	4.12	3.95	3.82	3.88
26	4.42	5.16	4.91	4.25	5.15	4.48	4.10	3.85	4.01	3.89	3.79	3.94
27	4.41	4.94	4.80	4.25	5.23	4.54	4.48	3.85	3.95	3.88	3.78	3.76
28	4.37	4.74	4.98	4.25	5.05	4.48	4.30	3.82	3.84	3.83	3.76	3.84
29	4.36	....	5.58	4.23	4.83	4.52	4.22	3.80	3.80	3.83	3.71	3.89
30	4.33	....	5.08	4.30	4.73	4.62	4.18	3.78	3.80	3.89	3.72	3.84
31	4.05	....	4.84	....	4.70	....	4.16	3.81	....	3.90	....	3.92
1910												
1	3.98	3.80	4.92	3.80	3.90	3.80	4.10	3.85	5.79	3.88	3.81	3.72
2	4.08	3.82	5.05	3.79	3.86	3.77	4.00	3.80	5.16	3.81	3.80	3.70
3	4.54	3.99	4.85	3.84	3.85	3.78	4.02	3.96	4.87	3.77	3.82	3.69
4	4.46	4.16	4.60	3.88	3.84	3.73	3.62	3.92	4.63	3.75	3.80	3.72
5	4.20	4.02	4.46	3.84	3.84	3.82	4.30	4.08	4.50	3.72	3.78	3.86

Daily gage height, in feet, of New River near Grayson, Va., for 1908–1912—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	4.08	3.88	4.40	3.79	3.81	4.11	4.62	3.95	4.29	3.82	3.78	4.20
7	4.55	3.89	4.40	3.79	3.76	4.14	4.52	3.85	4.12	4.44	3.76	4.50
8	4.85	3.86	4.22	3.73	4.00	3.88	4.54	3.93	4.05	5.32	3.75	4.48
9	4.40	3.99	4.17	3.72	4.40	3.86	4.98	3.92	4.01	5.31	3.75	4.26
10	4.10	3.96	4.14	3.66	4.34	3.96	4.42	3.83	3.99	4.65	3.74	4.12
11	3.99	4.04	4.13	3.68	4.12	4.82	4.26	3.78	3.99	4.27	3.74	4.00
12	3.92	3.80	4.14	3.70	4.08	6.08	4.40	3.76	3.92	4.11	3.70	3.90
13	4.10	3.80	4.11	4.01	4.08	6.50	4.75	3.80	3.92	4.01	3.70	3.73
14	4.10	3.91	4.01	4.05	4.04	6.09	4.50	3.87	3.89	3.97	3.72	3.63
15	4.04	4.02	3.98	3.93	3.94	5.93	4.22	3.80	3.87	3.93	3.76	3.65
16	3.98	4.34	3.92	3.88	3.90	5.46	4.15	3.75	3.82	3.89	3.78	3.79
17	3.92	4.80	3.91	3.98	3.88	5.04	4.36	3.87	3.79	3.87	3.78	3.70
18	3.98	6.06	3.90	4.11	3.90	4.70	4.40	3.70	3.75	3.85	3.71	3.81
19	3.95	5.33	3.89	4.08	3.95	4.52	4.26	3.72	3.73	3.86	3.72	3.92
20	3.98	4.67	3.90	3.96	3.92	4.42	4.14	3.76	3.72	3.97	3.71	3.89
21	4.10	4.58	3.98	3.93	3.90	4.62	4.01	3.78	3.73	4.12	3.70	3.72
22	4.82	4.54	3.92	3.90	3.90	4.68	3.98	3.88	3.75	4.02	3.70	3.35
23	4.36	4.45	3.91	3.89	4.14	4.54	3.94	3.88	3.70	3.88	3.68	3.80
24	4.25	4.32	3.85	3.88	4.14	4.22	3.90	3.80	3.69	3.85	3.69	4.00
25	4.18	4.26	3.86	3.98	4.28	4.61	3.86	3.76	3.71	3.81	3.72	4.22
26	4.06	4.18	3.85	4.04	4.45	4.46	3.86	3.75	3.75	3.80	3.72	4.08
27	3.97	4.12	3.84	4.12	4.20	4.32	3.84	3.76	3.87	3.80	3.71	4.06
28	4.00	4.30	3.86	4.11	4.06	4.20	3.84	3.74	3.99	3.86	3.75	4.04
29	3.99	....	3.81	4.06	3.96	4.12	3.90	3.74	3.97	3.84	3.77	4.13
30	4.00	....	3.81	3.94	3.90	4.12	3.96	3.75	3.93	3.83	3.92	4.25
31	3.97	....	3.79	....	3.85	....	3.88	4.23	....	3.82	....	4.36
1911												
1	4.31	4.70	3.88	4.24	4.50	4.00	3.65	3.46	4.42	3.59	3.70	3.83
2	5.31	4.44	3.88	4.18	4.52	3.89	3.62	3.59	4.09	3.44	3.68	3.79
3	5.92	4.26	3.89	4.16	4.37	3.86	3.58	3.55	4.81	3.60	3.69	3.79
4	6.16	4.17	3.86	4.18	4.27	3.80	3.59	3.74	3.66	3.58	3.64	3.78
5	5.24	4.20	3.80	5.74	4.22	3.80	3.72	3.94	3.60	3.59	3.66	3.73
6	4.70	4.10	3.87	6.69	4.18	4.26	4.08	3.86	3.60	3.64	3.74	3.74
7	4.40	4.09	4.46	5.68	4.15	4.12	3.78	3.82	3.61	3.58	4.18	3.78
8	4.37	4.12	4.90	5.61	4.14	4.06	3.89	3.80	3.63	3.55	4.25	3.73
9	4.22	4.84	5.49	5.29	4.10	3.84	3.82	3.68	3.54	3.56	4.10	3.72
10	4.11	5.26	5.42	4.95	4.09	3.87	3.78	3.60	3.60	3.58	4.09	3.70
11	3.98	4.94	5.18	4.82	4.06	3.82	3.78	3.62	3.61	3.62	4.06	3.70
12	4.09	4.63	4.62	4.78	4.05	3.79	3.79	3.48	3.84	3.72	4.00	3.72
13	4.06	4.47	4.50	4.96	4.24	3.78	3.82	3.65	3.78	3.70	4.06	3.74
14	4.00	4.37	4.44	5.39	4.89	3.74	3.82	3.56	3.67	3.63	4.05	3.72
15	4.00	4.24	4.38	5.68	4.48	3.69	3.82	3.62	3.55	3.60	3.98	3.79
16	4.04	4.16	4.28	5.57	4.25	3.68	3.70	3.55	3.56	3.68	3.90	4.00
17	3.98	4.10	4.16	5.18	4.13	3.67	3.66	3.54	3.51	4.00	3.86	4.20
18	3.95	4.06	4.10	4.86	4.08	3.70	3.59	3.51	3.55	7.22	3.82	4.10
19	3.92	4.02	4.12	4.76	4.06	3.73	3.55	3.54	3.54	5.26	3.92	3.92
20	3.93	4.02	4.19	5.00	4.00	3.84	3.59	3.54	3.50	4.42	3.92	3.90
21	3.94	4.11	4.17	4.84	3.99	3.90	3.60	3.28	3.59	4.26	3.90	3.89
22	4.00	3.94	4.07	4.67	3.98	3.76	3.57	3.46	4.51	4.00	3.85	4.84
23	3.98	3.87	4.02	4.56	3.96	3.69	3.27	3.29	4.10	4.10	3.82	5.38
24	4.17	3.96	4.02	4.46	3.94	3.68	3.56	3.28	3.86	4.04	3.82	4.93
25	4.28	3.94	4.01	4.38	3.94	3.76	3.54	3.26	3.78	3.92	3.90	4.76
26	4.18	3.91	3.98	4.32	3.90	3.78	3.50	3.31	3.69	3.82	3.88	4.60
27	4.16	3.90	4.34	4.26	3.86	3.74	3.54	3.74	3.62	3.79	3.82	4.62
28	4.13	3.89	4.58	4.21	3.83	4.04	3.54	3.70	3.60	3.78	3.84	4.56
29	4.20	....	4.43	4.24	3.81	3.90	3.41	3.74	3.58	3.75	3.84	4.31
30	4.25	....	4.33	4.28	3.80	3.77	3.53	4.14	3.53	3.73	3.87	4.30
31	4.59	....	4.32	....	3.87	....	3.56	4.17	....	3.72	....	4.29

Daily gage height, in feet, of New River near Grayson, Va., for 1908–1912—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	4.5	4.4	4.45	4.9	4.45	4.05	4.2	4.05	3.66	3.82	3.60	3.69
2	4.35	4.25	4.35	5.1	4.4	4.0	4.0	3.96	3.66	3.80	3.67	3.82
3	4.3	4.05	4.2	5.6	4.35	4.2	4.05	3.86	3.62	3.72	3.67	3.78
4	4.15	3.78	4.25	5.3	4.2	4.2	....	3.93	3.60	3.75	3.65	3.85
5	3.89	3.81	4.3	4.8	4.2	4.1	4.4	4.0	3.63	3.71	3.61	3.92
6	3.77	3.94	4.4	4.65	4.25	4.05	4.9	3.90	3.66	3.68	3.78	3.88
7	3.68	4.1	4.35	4.6	4.25	4.15	4.6	3.83	3.62	3.67	4.0	3.90
8	4.3	4.1	4.55	4.6	4.25	4.05	4.35	3.79	3.74	3.74	4.5	3.86
9	4.4	4.05	4.75	4.45	4.15	4.0	4.1	3.82	4.0	3.65	4.3	3.81
10	4.35	4.05	4.8	4.35	4.1	3.93	4.1	3.92	3.80	3.63	3.99	3.72
11	4.35	4.05	4.65	4.3	4.1	3.89	4.15	3.98	3.67	3.62	3.86	3.70
12	4.25	3.94	4.6	4.25	5.5	3.86	4.35	3.88	3.60	3.62	3.86	3.75
13	4.35	3.79	4.85	4.25	5.1	3.82	4.4	3.8	3.98	3.65	3.85	3.60
14	4.3	3.96	4.95	4.2	4.7	3.90	4.3	3.78	3.78	3.68	3.84	3.78
15	4.65	3.9	6.0	4.2	4.5	4.1	4.2	3.77	3.72	3.79	3.88	3.66
16	4.5	3.87	7.0	4.2	4.9	4.2	4.1	3.76	3.75	3.87	3.80	3.72
17	4.25	3.98	5.8	4.25	5.4	4.05	3.99	3.78	3.68	3.76	3.71	3.83
18	4.2	3.98	5.2	4.25	4.9	3.96	4.05	3.74	3.75	3.69	3.76	3.73
19	4.25	4.1	4.85	4.2	4.6	3.92	4.2	3.74	3.98	3.72	3.68	3.71
20	4.35	4.1	4.75	4.1	4.45	3.84	4.4	3.78	3.94	3.75	3.67	3.76
21	4.55	4.4	4.6	4.1	4.35	3.81	4.35	4.55	3.74	3.76	3.56	3.65
22	4.4	5.8	4.5	4.2	4.3	3.79	4.2	4.1	3.67	3.76	3.70	3.60
23	4.2	5.0	4.4	4.5	4.2	3.86	4.1	3.94	4.15	3.79	3.68	3.68
24	4.05	4.6	4.6	4.4	4.2	3.84	4.0	3.83	5.3	3.78	3.64	3.58
25	4.1	4.65	5.2	4.2	4.1	4.5	3.98	3.78	4.7	3.75	3.56	3.65
26	4.05	4.8	4.9	4.15	4.1	4.4	4.1	3.75	4.2	3.69	3.61	3.65
27	4.05	5.4	4.65	4.2	4.05	4.3	3.98	3.84	4.1	3.67	3.77	3.84
28	4.05	5.1	4.6	4.4	4.15	4.0	3.86	3.74	4.15	3.65	3.65	3.85
29	4.1	4.7	5.1	4.4	4.25	4.1	3.83	3.68	4.1	3.65	3.59	3.75
30	4.9	....	5.9	4.5	4.3	4.4	4.25	3.68	3.96	3.64	3.61	4.0
31	4.8	....	5.2	....	4.15	....	4.2	3.69	....	3.60	....	5.9

NOTE.—Ice in stream on following dates:

1909: Dec. 9-31; Dec. 31, river frozen one-third distance across from either side.
1910: Jan. 1-4 and during December.
1911: No ice reported.
1912: No notes regarding ice. Snow and ice reported Jan. 8, and sleet and rain Jan. 29. Discharge relation probably affected by ice Jan. 6-19 and Feb. 5-17. Dec. 31 observer reported backwater from Appalachian Power Co.'s dam below station.

NEW RIVER AT RADFORD, VA.

Location.—At the toll highway bridge near Norfolk & Western Railway station at Radford, 1½ miles below Norfolk & Western Railway bridge, and 6 miles below mouth of Little River.

Drainage area.—2,720 square miles.

Records available.—August 1, 1898, to July 15, 1906; May 6, 1907, to December 31, 1914.

Gage.—Chain attached to the bridge; read twice daily. U. S. Weather Bureau gage originally used, but, owing to its inaccessibility, it was replaced by a wire gage February 23, 1900. Wire gage replaced by the chain gage December 1, 1903, and datum lowered 3.41 feet to avoid negative readings.

Discharge measurements.—Made from the bridge.

Channel and control.—Left bank does not overflow; right bank overflows only in extreme floods. The stream flows in one channel at ordinary stages. At extreme high water the channel is broken by five tubular piers and several trestle bents. Bottom, solid rock and gravel. Control section has changed at times.

Extremes of discharge.—Maximum stage observed 1898 to 1914: 30.2 feet at 2 p. m., May 22, 1901; approximate discharge, 138,000 second-feet. Flood of September 15, 1878, reached a stage of 37 feet. Minimum stage recorded: August, 1900, but stage and discharge are very doubtful because of inaccuracies in gage-height record.

Winter flow.—Discharge relation seldom affected by ice.

Regulation.—Power plants about 50 miles above may affect flow at the station to a small extent.

Accuracy.—Rating curves probably reliable except for high stages and results good except for periods when they may be affected by inaccuracies in gage-height record. Discharge estimates below about 700 second-feet for early years, therefore, may be subject to large errors.

Discharge measurements of New River at Radford, Va., in 1906–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1906			
June 11	R. Follansbee	3.60	1,970
1907			
June 20	R. G. Knight	4.78	5,610
July 22	do	3.88	3,000
1908			
July 27	O'Neill and Chapman	3.99	3,230
Aug. 20	W. M. O'Neill	3.84	2,610
1909			
June 10	H. J. Jackson	5.15	7,300
June 22	do	4.36	4,050
Dec. 7	A. H. Horton	3.50	1,830
1910			
Mar. 15	C. T. Bailey	3.85	2,730
Oct. 20	do	3.62	2,120
1911			
July 17	Horton and Bailey	3.38	1,510
1913			
Mar. 28	Jackson and Wallace	10.71	30,800
Mar. 28	do	10.01	27,600
Mar. 29	do	7.24	15,100
Mar. 29	do	6.83	13,200
Dec. 11	Peterson and Walters	3.77	2,410
1914			
Oct. 5	Mathers and Morgan	3.21	1,040
Oct. 23	do	3.61	1,850

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914.

[C. L. Gillespie, W. T. Linkous, J. H. Lucas, and R. B. Harvey, observers.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	4.0	5.1	4.0	6.2	3.9	3.7	3.6
2	3.9	4.9	4.1	5.3	3.9	3.7	3.6
3	4.1	4.9	4.2	4.9	3.8	3.8	3.6
4	6.9	4.5	4.8	4.7	4.2	3.7	3.6
5	6.1	4.3	4.9	4.4	4.1	3.7	3.6
6	5.7	4.7	4.7	4.1	4.5	3.8	3.6
7	5.4	4.5	4.4	4.1	4.6	3.7	3.6
8	4.5	4.3	4.5	4.4	4.3	3.7	3.8
9	4.3	4.4	4.3	4.3	4.3	3.8	3.8
10	4.2	4.3	4.2	4.4	4.1	3.7	3.7
11	3.7	4.2	4.1	4.3	4.0	3.6	3.7
12	3.6	4.2	4.0	4.3	4.0	3.6	3.7
13	4.3	3.8	4.1	4.3	4.0	3.9	3.7
14	4.9	3.7	4.2	4.1	3.8	5.85	3.6
15	4.7	3.8	4.2	4.2	3.8	6.0	3.6
16	4.8	3.7	5.4	4.3	3.9	5.2	....
17	4.7	3.7	5.6	5.2	3.7	5.0	....
18	4.5	3.8	4.7	4.8	3.7	4.9	....
19	4.5	3.7	4.4	4.6	3.8	4.8	....
20	4.2	4.0	4.5	4.4	3.7	4.6	....
21	4.2	4.1	5.0	4.3	3.7	4.9	....
22	4.2	3.9	4.4	4.2	3.8	4.3	....
23	8.2	4.2	4.5	4.1	3.7	4.0	....
24	10.2	4.3	4.4	4.0	3.7	4.0	....
25	7.1	4.1	4.4	4.1	3.8	4.0	....
26	6.6	4.0	4.4	3.7	3.7	3.8	....
27	5.9	4.1	4.4	3.9	3.7	3.8	....
28	6.0	4.0	4.8	3.8	4.0	3.8	....
29	5.5	....	4.7	3.8	3.9	3.8	....
30	5.4	....	4.4	3.8	3.9	3.7	....
31	5.2	....	6.8	....	3.8	....	....

Day	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907								
1	....	3.9	4.6	3.8	3.5	4.2	3.7	3.8
2	....	5.4	4.2	3.9	3.4	4.0	3.8	3.6
3	....	5.6	4.2	3.8	3.4	3.9	3.8	3.6
4	....	5.1	4.2	3.7	3.4	3.8	4.0	3.7
5	....	4.5	4.2	3.7	5.2	3.8	4.0	3.7
6	6.7	4.0	4.1	3.6	4.8	3.7	4.0	3.7
7	6.7	3.6	4.1	3.6	4.0	3.6	3.9	3.7
8	3.8	3.4	4.1	3.6	3.8	3.6	3.8	3.8
9	3.7	4.2	3.8	3.6	3.5	3.6	3.8	3.8
10	3.7	4.0	3.8	3.6	3.4	3.6	3.8	3.9
11	4.1	5.6	3.7	3.6	3.5	3.6	3.8	4.25
12	4.0	7.2	4.0	3.7	4.1	3.6	3.8	4.3
13	3.9	14.6	4.2	3.7	3.9	3.5	4.6	4.2
14	3.9	11.8	4.7	3.6	3.7	3.5	4.0	4.2
15	3.8	6.8	4.7	3.6	3.6	3.5	4.0	4.5
16	3.8	5.5	4.5	3.6	3.5	3.5	3.9	6.7
17	3.8	4.7	4.5	3.5	3.5	3.5	3.7	6.5
18	3.8	4.1	4.6	3.5	3.5	3.5	3.7	5.4
19	3.8	3.9	4.4	4.4	3.5	3.5	3.9	4.9
20	3.9	3.7	4.3	4.0	3.5	3.5	4.0	4.3

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914—Continued.

Day	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907								
21	3.8	3.7	4.1	3.9	3.5	3.5	4.0	4.2
22	3.7	3.6	4.1	3.7	3.5	3.4	4.0	4.1
23	3.8	4.4	3.8	4.1	9.5	3.4	4.9	7.4
24	3.8	5.0	3.7	3.9	11.3	3.4	5.3	7.4
25	3.8	4.8	3.7	3.9	6.4	3.6	5.4	7.0
26	3.8	5.4	3.6	3.8	5.1	3.6	5.4	5.6
27	3.8	4.8	3.6	3.8	4.5	3.6	5.4	4.8
28	3.8	4.6	3.6	3.7	4.2	3.6	5.4	4.7
29	3.8	4.6	3.6	3.5	4.2	3.6	4.6	4.5
30	3.8	4.9	3.6	3.5	4.4	3.6	4.2	4.5
31	3.8	....	3.6	3.5	....	3.7	....	4.5

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	5.6	4.2	4.7	4.3	4.7	4.3	4.2	4.3	4.1	3.8	5.7	4.1
2	5.0	4.2	5.6	8.1	4.7	4.15	5.2	4.1	3.9	3.8	5.5	4.5
3	4.8	3.9	5.8	7.4	4.5	4.0	4.6	3.9	3.9	3.7	5.2	4.6
4	4.6	3.8	5.2	6.4	4.5	4.1	4.5	3.8	3.8	3.7	4.9	4.3
5	5.0	3.9	5.8	5.6	4.4	8.0	5.3	3.7	3.8	3.6	4.7	4.3
6	5.0	4.85	6.8	5.0	4.3	6.1	5.2	3.7	4.2	3.5	4.5	4.2
7	5.0	5.4	6.5	5.1	4.3	5.2	5.1	4.7	4.2	3.5	4.2	4.3
8	5.0	5.0	5.9	4.8	6.05	4.9	4.9	4.0	4.9	3.5	5.0	6.8
9	5.7	4.5	5.5	4.8	5.5	4.6	5.2	4.6	4.6	3.4	4.9	5.7
10	5.6	4.4	5.2	4.6	5.0	4.4	4.8	4.2	4.2	4.1	4.3	5.0
11	5.6	4.4	5.0	4.7	4.85	4.25	4.5	4.1	4.0	6.8	4.3	4.7
12	11.8	4.9	5.0	4.5	4.6	4.3	4.3	3.9	3.8	5.0	4.5	4.5
13	9.7	8.8	5.1	4.3	4.5	4.4	4.1	3.8	3.7	4.3	4.3	5.4
14	5.9	9.0	4.9	4.4	4.4	4.25	4.1	3.7	3.4	4.0	4.2	4.9
15	5.9	9.65	4.9	4.4	4.2	5.0	4.1	3.7	3.5	3.7	4.2	4.5
16	5.6	10.7	4.8	4.5	4.2	5.1	4.0	3.6	3.5	3.6	4.5	4.5
17	5.0	9.3	4.9	4.5	4.2	5.0	3.9	3.7	3.5	3.6	4.1	4.3
18	4.9	6.7	4.9	4.5	4.3	4.5	3.9	3.7	3.5	3.6	4.1	4.3
19	4.8	5.7	4.6	4.6	4.4	4.1	3.9	3.7	3.4	3.7	4.6	4.2
20	4.6	5.3	4.7	4.5	4.7	4.2	3.9	3.7	3.4	3.7	4.7	4.3
21	4.6	5.1	4.7	4.4	5.6	4.2	3.8	3.7	3.4	3.7	4.6	4.2
22	4.4	5.0	4.8	4.2	5.3	4.2	3.8	3.7	3.4	3.6	4.4	4.2
23	4.5	4.8	4.7	4.1	5.05	4.05	3.8	5.2	3.5	3.6	4.3	4.5
24	4.5	4.9	5.3	4.2	4.8	4.4	4.5	4.2	3.5	7.7	4.2	4.9
25	4.4	4.1	5.3	4.25	4.7	4.3	4.1	4.0	3.6	8.6	4.2	4.3
26	4.2	4.1	5.1	5.4	4.5	4.2	4.1	8.0	3.6	5.8	4.1	5.2
27	4.4	5.2	4.9	5.6	4.4	4.1	3.9	6.8	3.6	5.0	4.0	5.3
28	4.8	4.9	4.7	5.1	4.2	4.1	4.1	5.2	3.6	4.8	4.0	4.9
29	4.4	4.7	4.7	4.85	4.3	4.0	4.2	4.6	4.1	5.9	4.0	4.7
30	4.3	....	4.6	4.6	4.5	4.0	4.3	4.5	3.8	8.1	4.0	5.1
31	4.2	....	4.2	....	4.5	....	4.4	4.3	....	7.7	....	6.1
1909												
1	6.0	4.5	4.8	4.9	5.9	4.7	4.7	4.1	3.4	3.4	3.4	3.3
2	5.6	3.8	4.6	4.6	5.5	4.6	4.6	5.2	3.4	3.5	3.4	3.3
3	5.1	3.9	4.6	4.4	5.4	4.5	4.5	4.9	3.3	3.5	3.4	3.3
4	4.8	3.8	4.3	4.2	4.9	4.9	4.4	4.4	3.3	3.4	3.4	3.3
5	5.0	3.6	4.3	4.2	4.5	7.9	4.1	4.0	3.3	3.3	3.4	3.3
6	7.5	3.7	4.3	4.1	4.4	6.1	4.0	4.1	3.2	3.3	3.4	3.3
7	6.2	4.0	4.2	4.1	4.4	5.6	4.3	4.1	3.2	3.3	3.4	3.5
8	5.6	3.8	5.1	4.1	4.3	5.0	4.5	4.1	3.2	3.3	3.5	3.7
9	4.9	3.8	5.2	4.0	4.2	5.7	4.9	3.9	3.5	3.3	3.4	3.8
10	4.7	5.4	5.0	4.2	4.2	5.2	4.5	3.7	4.2	3.5	3.4	3.7

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
11	4.5	6.3	4.8	4.1	6.1	5.0	4.2	3.5	4.0	3.5	3.6	3.4
12	4.7	5.2	4.9	4.0	5.8	4.7	4.2	3.5	3.8	6.0	3.6	3.5
13	4.6	4.0	4.8	4.0	5.0	4.6	4.0	3.4	3.5	5.1	3.6	3.7
14	4.5	4.6	4.6	8.2	4.6	5.2	4.1	3.4	3.6	4.6	3.6	5.4
15	4.5	4.5	4.4	6.8	4.4	4.9	4.0	3.4	3.5	3.8	3.5	4.5
16	4.9	4.6	4.2	5.4	4.3	4.7	4.0	3.9	3.5	3.7	3.4	4.1
17	5.4	5.3	4.4	5.2	4.2	4.5	3.9	4.3	4.0	3.6	3.3	3.7
18	6.0	5.0	4.4	5.0	4.2	4.3	3.9	4.1	3.9	3.8	3.3	3.7
19	5.4	4.7	4.2	4.7	4.1	4.8	3.7	3.8	3.8	3.6	3.3	3.7
20	5.5	4.9	4.2	4.5	4.0	4.4	3.7	3.6	3.8	3.6	3.3	3.7
21	5.3	4.7	4.3	4.4	8.9	4.3	3.6	3.6	3.6	3.7	3.3	3.6
22	4.8	4.7	4.3	4.4	11.8	4.3	3.6	3.5	3.5	3.6	3.3	3.6
23	4.7	4.8	4.6	4.3	7.4	4.3	3.7	3.4	3.6	3.6	3.3	3.5
24	4.6	5.5	4.5	4.3	6.1	4.6	3.6	3.1	3.7	3.6	3.3	3.2
25	4.6	5.7	4.3	4.3	5.5	4.5	3.8	3.9	4.0	3.6	3.3	3.4
26	4.4	5.5	5.2	4.1	5.4	4.4	3.8	3.8	3.8	3.6	3.3	3.8
27	4.3	5.4	5.2	4.1	6.1	4.3	3.7	3.8	3.7	3.6	3.3	3.5
28	4.2	5.2	5.0	4.0	5.6	4.3	3.7	3.7	3.6	3.6	3.3	3.4
29	4.2	....	5.6	4.0	5.1	4.8	4.3	3.5	3.5	3.5	3.3	3.3
30	4.0	....	5.4	4.0	4.9	4.6	4.1	3.4	3.4	3.5	3.3	3.3
31	4.6	....	5.3	....	4.8	....	4.0	3.4	....	3.5	....	3.3
1910												
1	3.4	3.8	4.1	3.6	3.8	3.4	4.0	3.4	5.2	3.5	3.45	3.4
2	3.4	3.9	4.1	3.7	3.7	3.4	4.0	3.35	5.25	3.5	3.5	3.25
3	3.9	3.7	4.9	3.6	3.7	3.5	3.9	3.4	4.25	3.4	3.5	3.15
4	4.8	3.7	5.8	3.95	3.65	3.4	4.15	3.5	4.3	3.4	3.4	3.2
5	4.1	3.8	5.2	3.85	3.6	3.45	4.15	3.7	4.3	3.55	3.4	3.4
6	4.2	3.8	4.5	3.8	3.55	3.6	3.95	3.6	4.2	3.4	3.5	3.6
7	4.2	3.6	4.5	3.6	3.5	4.0	4.35	3.7	4.1	3.55	3.4	4.6
8	4.4	3.8	4.4	3.5	3.55	3.8	4.55	3.6	4.1	4.9	3.45	4.3
9	4.4	3.8	4.3	3.5	3.75	3.8	4.5	3.6	3.8	6.05	3.4	3.8
10	3.6	3.9	4.2	3.4	4.25	3.95	4.6	3.5	3.75	5.0	3.4	3.75
11	3.4	3.9	4.1	3.45	3.95	5.05	4.25	3.6	3.65	4.2	3.4	3.65
12	3.7	3.9	4.1	3.45	3.9	7.9	4.0	3.45	3.5	3.9	3.4	3.35
13	3.8	3.1	3.8	4.05	3.8	9.1	4.55	3.4	3.5	2.9	3.3	3.3
14	3.9	3.2	3.8	4.2	3.75	9.7	4.85	3.4	3.5	2.95	3.35	3.15
15	3.9	3.5	3.7	4.05	3.7	7.05	4.5	3.5	3.55	3.0	3.3	2.95
16	3.7	4.7	3.8	3.85	3.6	6.55	4.05	3.4	3.55	2.9	3.35	3.3
17	3.6	4.8	3.75	3.9	3.7	5.85	4.3	3.5	3.3	2.9	3.45	3.45
18	3.6	8.4	3.8	4.7	3.7	5.1	4.95	3.4	3.3	3.4	3.5	3.45
19	3.7	7.2	3.75	4.15	3.8	4.95	4.55	3.5	3.3	3.5	3.4	3.5
20	3.8	5.1	3.75	3.95	3.8	4.75	4.0	3.4	3.4	3.6	3.4	3.5
21	4.1	5.4	3.8	3.85	3.6	4.5	4.0	3.5	3.4	3.5	3.4	3.35
22	4.2	4.8	3.8	3.85	3.7	4.55	3.75	3.5	3.25	3.65	3.35	3.3
23	4.6	4.6	3.8	3.75	3.9	4.55	3.75	3.6	3.3	3.6	3.4	3.2
24	4.4	4.5	3.75	3.7	4.2	4.45	3.7	3.5	3.2	3.5	3.25	3.2
25	4.2	4.3	3.7	3.75	4.3	5.05	3.6	3.55	3.2	3.45	3.2	3.3
26	4.1	4.1	3.7	3.9	4.5	4.75	3.55	3.5	3.3	3.4	3.3	3.5
27	3.9	4.1	3.7	4.2	4.45	4.1	3.5	3.7	3.5	3.45	3.3	3.7
28	3.8	4.1	3.6	4.0	4.15	4.1	3.5	3.6	3.5	3.5	3.45	3.7
29	3.4	....	3.6	3.95	3.8	4.05	3.4	3.6	3.6	3.4	3.5	3.8
30	3.8	....	3.6	3.8	3.75	3.85	3.4	3.5	3.55	3.4	3.45	3.85
31	3.9	....	3.55	....	3.5	....	3.2	3.3	....	3.4	....	4.0
1911												
1	4.5	5.05	3.6	4.25	4.2	3.8	3.5	3.15	4.63	3.28	3.25	3.02
2	5.3	4.6	3.5	4.15	4.3	3.65	3.3	3.08	4.26	3.33	3.06	3.10
3	6.3	4.3	3.5	4.05	4.2	3.45	3.25	3.08	3.91	3.75	3.11	3.63
4	7.1	4.05	3.5	4.6	4.15	3.55	3.3	3.10	3.60	3.81	3.08	3.61
5	5.4	4.0	3.6	5.9	4.0	3.6	3.4	3.69	3.41	3.51	2.99	3.53

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
6	4.7	4.0	3.7	8.1	3.95	3.65	3.6	4.24	3.26	3.43	3.30	3.52
7	4.5	3.9	4.1	6.85	4.0	4.2	3.5	3.68	3.00	3.34	3.39	3.62
8	4.4	4.0	4.7	6.45	4.0	4.15	4.55	3.50	3.10	3.28	3.75	3.63
9	3.9	4.95	5.2	6.2	4.0	3.95	3.75	3.41	3.05	3.44	3.77	3.60
10	3.95	5.95	5.95	5.55	4.0	3.7	3.6	3.30	3.15	3.53	3.50	3.56
11	3.85	5.2	5.7	5.2	3.85	3.6	3.75	3.20	3.15	3.63	3.29	3.60
12	3.65	4.75	5.0	5.0	3.8	4.05	3.55	3.08	3.21	3.64	3.65	3.59
13	3.7	4.45	4.75	5.05	3.95	3.6	3.5	3.38	3.11	3.53	3.75	3.60
14	3.65	4.35	4.5	5.35	4.6	3.6	3.55	3.49	3.27	3.43	3.57	3.62
15	3.7	3.9	4.6	5.85	4.85	3.35	3.55	3.29	3.17	3.44	3.53	4.00
16	3.65	4.15	4.35	6.3	4.3	3.35	3.5	3.22	3.00	3.55	3.74	4.55
17	3.5	3.95	4.15	5.55	4.05	3.3	3.35	3.17	2.96	3.41	3.75	4.53
18	3.6	3.9	4.05	5.1	4.05	3.3	3.4	3.15	2.96	8.11	3.57	4.17
19	3.6	4.0	4.1	4.9	4.0	3.35	3.3	3.12	3.05	6.06	3.44	3.93
20	3.65	4.0	3.9	4.95	3.8	3.45	3.25	3.09	2.87	4.51	3.80	3.85
21	3.65	3.95	4.0	5.15	3.75	3.6	3.25	3.05	2.92	3.96	3.73	3.83
22	3.95	3.7	3.9	5.0	3.35	3.55	3.2	2.85	3.99	3.96	3.63	3.94
23	4.8	3.6	3.85	4.7	3.7	3.45	3.1	2.96	4.25	4.11	3.63	5.63
24	4.65	3.6	3.7	4.5	3.8	3.35	3.1	2.97	3.85	3.51	3.73	5.48
25	4.35	3.6	3.8	4.35	3.8	3.45	3.15	2.88	3.29	3.43	3.63	5.22
26	4.2	3.7	3.85	4.2	3.75	3.55	3.15	2.95	3.26	3.48	3.75	5.24
27	3.95	3.75	4.0	4.2	3.55	3.5	3.06	3.30	3.55	3.31	3.72	5.26
28	3.95	3.7	4.35	4.2	3.45	3.85	3.19	3.41	3.57	3.20	3.65	5.18
29	4.05	....	4.35	4.15	3.45	4.0	3.11	4.56	3.34	3.32	3.04	4.94
30	4.4	....	4.2	4.2	3.5	3.55	3.11	4.36	3.35	3.30	3.15	4.30
31	5.4	....	4.2	....	3.55	....	3.18	4.62	....	3.22	....	4.33
1912												
1	4.5	4.2	4.8	5.5	4.7	4.1	4.15	3.75	3.31	3.6	3.34	3.34
2	4.5	4.3	4.45	5.6	4.6	3.9	4.15	3.65	3.23	3.55	3.34	3.20
3	4.3	4.05	....	6.7	4.4	4.0	3.9	3.5	3.41	3.55	3.38	3.65
4	4.2	3.6	....	5.9	4.25	4.2	4.05	4.2	3.27	3.55	3.12	3.6
5	3.8	3.46	....	5.3	4.2	4.0	4.3	4.2	3.23	3.40	3.45	3.6
6	3.29	3.65	....	5.0	4.25	3.9	5.0	4.4	3.19	3.38	3.37	3.85
7	3.30	3.8	....	4.9	4.3	3.9	4.5	4.6	3.18	3.38	3.5	3.7
8	3.55	3.95	....	4.9	4.3	3.9	4.20	4.7	3.39	3.47	4.5	3.65
9	3.8	3.95	....	4.7	4.2	3.8	3.95	4.25	3.49	3.42	4.35	3.6
10	4.0	3.8	5.3	4.6	4.1	3.75	3.95	3.85	3.55	3.36	4.05	3.55
11	4.05	3.8	5.1	4.5	4.05	3.75	4.0	3.65	3.42	3.28	3.7	3.46
12	4.0	3.8	4.9	4.4	9.2	3.7	4.15	3.75	3.33	3.29	3.65	3.42
13	4.0	3.65	6.0	4.3	6.8	3.65	4.15	3.45	3.29	3.28	3.6	3.5
14	3.85	3.8	5.9	4.25	5.4	3.65	4.05	3.45	3.37	3.41	3.55	3.55
15	3.85	3.75	7.6	4.25	5.0	3.85	3.95	3.5	3.39	3.6	3.65	3.55
16	4.0	3.65	9.6	4.25	6.3	3.95	3.85	3.6	3.31	3.6	3.7	3.26
17	3.95	3.65	6.8	4.25	6.9	4.0	3.7	3.7	3.45	3.42	3.55	3.55
18	3.65	3.85	5.9	4.35	5.6	3.8	3.7	3.55	3.65	3.42	3.28	3.55
19	3.95	3.9	5.3	4.25	5.2	3.85	3.95	3.48	3.75	3.5	3.6	3.49
20	4.35	4.05	5.0	4.15	4.8	3.7	3.9	3.42	3.85	3.42	3.6	3.36
21	4.35	4.2	4.9	4.1	4.6	3.6	3.95	3.43	3.6	3.18	3.48	3.42
22	4.35	7.3	4.7	4.45	4.45	3.55	3.95	3.7	3.39	3.5	3.30	3.47
23	4.05	5.7	4.6	4.45	4.35	3.65	3.75	3.65	4.15	3.49	3.32	3.28
24	4.0	4.9	4.8	4.4	4.25	3.9	3.65	3.5	6.1	3.38	3.38	3.55
25	3.95	5.1	5.7	4.3	4.15	4.1	3.65	3.39	5.3	3.49	3.38	3.28
26	3.95	5.2	5.5	4.1	4.1	4.5	3.6	3.37	4.8	3.45	3.38	3.20
27	3.95	6.5	5.1	4.1	4.05	4.25	3.7	3.37	4.05	3.45	3.55	3.20
28	3.9	5.7	4.8	4.15	4.05	4.5	3.6	3.44	3.95	3.36	3.40	3.31
29	3.95	5.1	8.5	4.35	4.2	3.9	3.44	3.30	3.95	3.38	3.32	3.6
30	4.8	....	7.5	4.8	4.25	3.95	3.42	3.37	3.75	3.42	3.44	3.39
31	5.3	....	6.1	....	4.2	....	3.44	3.38	....	3.41	....	3.8

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
1	4.2	4.15	5.4	5.1	4.0	4.8	3.75	3.46	3.65	3.55	3.55	3.55
2	3.95	4.05	5.3	4.8	3.95	4.5	3.7	3.43	3.5	3.6	3.5	4.45
3	3.9	4.0	4.3	4.6	3.9	4.3	4.6	3.43	3.55	3.55	3.48	4.35
4	3.9	4.05	4.05	4.5	3.9	5.2	4.8	3.23	3.9	3.55	3.7	4.05
5	3.95	4.15	3.95	4.4	3.9	4.5	4.9	3.24	4.1	3.49	3.65	3.85
6	3.9	4.2	3.9	4.25	3.9	4.35	4.3	3.28	4.1	3.36	3.6	3.75
7	4.0	3.9	3.7	4.2	3.9	4.2	3.95	3.27	4.0	3.45	3.55	3.85
8	3.9	3.5	3.65	4.2	3.85	4.3	3.75	3.55	3.7	3.55	3.48	3.75
9	3.8	3.5	3.7	4.15	3.9	4.4	3.7	3.46	3.7	3.6	4.35	3.75
10	3.65	3.6	3.7	4.1	3.85	4.4	3.6	3.44	3.6	3.65	4.3	3.8
11	3.7	3.85	4.0	4.2	3.8	4.2	3.65	3.65	3.55	3.6	4.0	3.75
12	3.75	3.75	4.0	5.8	3.8	4.3	4.0	3.7	3.5	3.5	3.85	3.6
13	3.8	3.75	4.0	8.6	3.75	4.15	3.7	4.0	3.45	3.35	3.75	3.65
14	3.8	3.5	7.9	7.2	3.75	4.1	3.6	3.7	3.42	3.55	3.75	3.65
15	3.7	3.55	9.8	5.9	3.7	3.95	3.7	3.7	3.27	3.55	3.75	3.7
16	3.7	3.5	9.0	5.5	3.85	3.9	3.65	3.6	3.55	3.6	3.6	3.7
17	3.6	3.6	6.6	5.4	4.15	3.85	3.6	3.55	3.55	3.55	3.65	3.65
18	3.6	3.49	5.2	5.1	4.4	3.8	3.6	3.32	3.55	3.48	3.9	3.55
19	3.55	3.65	5.0	4.8	4.2	3.75	3.55	3.8	3.49	3.5	3.8	3.6
20	3.5	3.9	4.8	4.6	4.0	3.8	3.42	3.8	3.6	3.95	3.75	3.65
21	3.55	3.75	4.5	4.3	4.0	3.75	3.49	4.0	5.9	4.0	3.6	3.55
22	3.55	3.9	4.7	4.4	4.3	3.75	3.55	3.85	6.0	3.95	3.6	3.42
23	3.65	3.9	4.6	4.3	7.1	4.05	3.5	3.7	4.8	3.75	3.65	3.7
24	3.49	3.85	4.4	4.25	10.0	4.1	3.43	3.65	4.2	3.75	3.49	3.65
25	3.5	3.8	4.3	4.15	7.3	4.15	3.55	3.75	4.15	4.4	3.7	3.6
26	3.6	3.65	4.45	4.1	5.6	4.15	3.34	3.6	3.8	4.7	3.65	3.7
27	3.95	3.95	12.3	4.15	5.6	4.1	3.20	3.55	3.5	4.2	3.65	4.1
28	5.1	5.1	11.3	4.25	6.8	4.0	3.24	3.5	3.5	3.95	3.49	3.95
29	5.5	....	7.2	4.15	6.0	3.8	3.34	3.46	3.29	3.7	3.55	3.9
30	5.1	....	6.0	4.0	5.3	3.8	3.35	3.65	3.5	3.75	3.65	3.8
31	4.6	....	5.6	....	5.2	....	3.45	3.7	....	3.65	....	3.9
1914												
1	3.75	5.8	4.5	5.6	4.0	3.6	3.40	3.30	3.75	3.12	3.55	6.1
2	3.75	5.6	4.4	5.6	4.0	3.6	3.28	3.20	3.6	3.15	3.24	7.0
3	3.7	4.8	4.1	5.2	3.95	3.6	3.22	3.16	3.6	3.12	3.42	6.9
4	3.6	4.35	4.2	4.9	3.9	3.6	3.28	3.25	3.6	3.18	3.55	6.4
5	3.9	4.3	4.3	4.8	4.0	3.55	3.20	3.22	3.45	3.34	3.46	12.3
6	3.9	4.45	4.5	4.45	4.2	3.5	3.18	3.20	3.42	3.75	3.49	8.4
7	3.95	5.9	4.35	4.5	4.3	3.55	3.22	3.28	3.02	3.6	3.41	6.5
8	3.85	5.9	4.5	4.3	4.3	3.7	3.65	3.12	3.10	3.65	3.26	5.7
9	4.05	5.3	4.25	4.7	4.1	3.75	3.5	3.12	3.20	3.7	3.22	5.2
10	4.7	4.8	4.1	4.5	4.0	3.6	3.55	3.12	3.18	3.43	3.55	5.0
11	5.0	4.5	4.3	4.3	4.0	3.55	3.41	3.38	3.30	3.12	3.45	4.7
12	4.6	4.5	5.3	4.2	4.0	3.55	3.5	3.29	3.38	3.18	3.55	4.6
13	4.15	4.4	5.4	4.15	3.9	3.55	3.38	3.22	3.5	3.32	3.5	4.4
14	3.85	4.25	5.2	4.15	3.85	3.5	3.9	3.18	3.22	3.20	3.5	4.45
15	3.85	4.1	4.9	4.6	3.65	3.38	4.1	3.21	3.18	3.26	3.55	4.2
16	4.0	4.0	4.8	5.8	3.7	3.45	3.95	3.28	3.10	5.3	5.1	3.85
17	4.0	4.0	4.8	5.4	3.75	3.48	4.2	3.18	3.08	6.3	4.5	3.95
18	4.0	4.2	5.0	5.1	3.75	3.45	3.9	3.22	3.18	4.6	4.15	4.0
19	4.0	5.0	5.0	4.8	3.8	3.55	3.7	3.30	3.40	4.05	3.9	4.1
20	4.0	6.5	4.9	4.8	3.75	3.5	3.6	3.16	3.30	3.9	3.75	4.5
21	4.8	6.9	4.7	5.0	3.7	3.5	3.55	3.20	3.45	3.7	3.6	5.0
22	4.35	6.0	4.6	4.8	3.7	3.18	3.42	3.32	3.5	3.65	3.6	5.6
23	4.1	5.5	4.6	4.6	3.75	3.46	3.32	3.15	3.5	3.6	3.6	5.2
24	4.1	5.1	4.5	4.45	3.6	3.30	3.38	3.15	3.5	3.65	3.65	4.8
25	4.4	4.9	4.5	4.35	3.6	3.20	3.38	3.15	3.5	3.7	3.7	4.8

Daily gage height, in feet, of New River at Radford, Va., for 1906–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
26	4.6	4.8	4.45	4.25	3.55	3.12	3.35	3.55	3.28	3.7	3.7	6.0
27	4.3	4.8	4.4	4.25	3.6	3.05	3.14	4.0	3.28	3.65	3.7	5.7
28	4.0	4.6	4.35	4.2	3.6	3.05	3.30	4.1	3.18	3.55	3.7	5.0
29	4.0	....	4.4	4.1	3.6	3.18	3.20	4.8	3.20	3.55	3.55	5.0
30	3.9	....	4.6	4.05	3.65	3.32	3.22	4.15	3.28	3.5	3.65	5.6
31	4.6	....	5.3	....	3.6	....	3.22	3.8	....	3.55	....	5.9

NOTE.—Very few notes on ice in the stream have been reported by the observers. It is probable that discharge relation was affected by ice about Jan. 7-20 and Feb. 6-13, 1912. Gage heights during May and June, 1907, and September to November, 1911, are of doubtful accuracy, as it is apparent that observers made errors of a foot or one-half foot in recording heights. These heights as far as possible have been corrected by comparison with records at other stations.

Daily discharge, in second-feet, of New River at Radford, Va., for 1906–1914.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1906							
1	3,290	7,160	3,290	11,600	3,000	2,430	2,160
2	3,000	6,380	3,590	7,940	3,000	2,430	2,160
3	3,590	6,380	3,900	6,380	2,710	2,710	2,160
4	14,700	4,900	6,000	5,630	3,900	2,430	2,160
5	11,200	4,220	6,380	4,550	3,590	2,430	2,160
6	9,540	5,630	5,630	3,590	4,900	2,710	2,160
7	8,340	4,900	4,550	3,590	5,260	2,430	2,160
8	4,900	4,220	4,900	4,550	4,220	2,430	2,710
9	4,220	4,550	4,220	4,220	4,220	2,710	2,710
10	3,900	4,220	3,900	4,550	3,590	2,430	2,430
11	2,430	3,900	3,590	4,220	3,290	2,160	2,430
12	2,160	3,900	3,290	4,220	3,290	2,160	2,430
13	4,220	2,710	3,590	4,220	3,290	3,000	2,430
14	6,380	2,430	3,900	3,590	2,710	10,200	2,160
15	5,630	2,710	3,900	3,900	2,710	10,800	2,160
16	6,000	2,430	8,340	4,220	3,000	7,550	....
17	5,630	2,430	9,140	7,550	2,430	6,770	....
18	4,900	2,710	5,630	6,000	2,430	6,380	....
19	4,900	2,430	4,550	5,260	2,710	6,000	....
20	3,900	3,290	4,900	4,550	2,430	5,260	....
21	3,900	3,590	6,770	4,220	2,430	6,380	....
22	3,900	3,000	4,550	3,900	2,710	4,220	....
23	20,600	3,900	4,900	3,590	2,430	3,290	....
24	30,800	4,220	4,550	3,290	2,430	3,290	....
25	15,600	3,590	4,550	3,590	2,710	3,290	....
26	13,300	3,290	4,550	2,430	2,430	2,710	....
27	10,400	3,590	4,550	3,000	2,430	2,710	....
28	10,800	3,290	6,000	2,710	3,290	2,710	....
29	8,740	....	5,630	2,710	3,000	2,710	....
30	8,340	....	4,550	2,710	3,000	2,430	....
31	7,550	....	14,200	....	2,710	....	....

Daily discharge, in second-feet, of New River at Radford, Va., for 1906–1914—Contd.

Day	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907								
1	......	3,000	5,260	2,710	1,900	3,900	2,430	2,710
2	......	8,340	3,900	3,000	1,640	3,290	2,710	2,160
3	......	9,140	3,900	2,710	1,640	3,000	2,710	2,160
4	......	7,160	3,900	2,430	1,640	2,710	3,290	2,430
5	......	4,900	3,900	2,430	7,550	2,710	3,290	2,430
6	13,800	3,290	3,590	2,160	6,000	2,430	3,290	2,430
7	13,800	2,160	3,590	2,160	3,290	2,160	3,000	2,430
8	2,710	1,640	3,590	2,160	2,710	2,160	2,710	2,710
9	2,430	3,900	2,710	2,160	1,900	2,160	2,710	2,710
10	2,430	3,290	2,710	2,160	1,640	2,160	2,710	3,000
11	3,590	9,140	2,430	2,160	1,900	2,160	2,710	4,060
12	3,290	16,000	3,290	2,430	3,590	2,160	2,710	4.220
13	3,900	52,900	3,900	2,430	3,000	1,900	5,260	3,900
14	3,000	38,400	5,630	2,160	2,430	1,900	3,290	3,900
15	2,710	14.200	5,630	2,160	2,160	1,900	3,290	4,900
16	2.710	8,740	4,900	2,160	1,900	1,900	3,000	13,800
17	2,710	5,630	4,900	1,900	1,900	1,900	2,430	12,900
18	2,710	3,590	5,260	1,900	1,900	1,900	2,430	8,340
19	2,710	3,000	4,550	4,550	1,900	1,900	3,000	6,380
20	2,710	2,430	4,220	3,290	1,900	1,900	3,290	4,220
21	2.710	2,430	3,590	3,000	1,900	1,900	3,290	3,900
22	2,430	2,160	3,590	2,430	1,900	1,640	3,290	3,590
23	2,710	4,550	2,710	3,590	26,800	1,640	6,380	16,900
24	2.710	6.770	2,430	3,000	35,800	1,640	7,940	16,900
25	2.710	6,000	2,430	3,000	12,500	2,160	8,340	15,100
26	2,710	8,340	2,160	2,710	7,160	2,160	8,340	9,140
27	2,710	6,000	2,160	2,710	4,900	2,160	8,340	6,000
28	2,710	5,260	2,160	2,430	3,900	2,160	8,340	5,630
29	2,710	5,260	2,160	1,900	3,900	2,160	5,260	4,900
30	2,710	6,380	2,160	1,900	4,550	2,160	3,900	4,900
31	2,710	......	2,160	1,900	......	2,430	......	4,900

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	9,140	3,900	5,630	4,220	5,630	4.220	3,900	4,220	3,590	2,710	9,540	3,590
2	6,770	3,900	9,140	20,100	5,630	3,740	7,550	3,590	3,000	2,710	8,740	4,900
3	6,000	3,000	9,950	16,900	4,900	3,290	5.260	3,000	3,000	2,430	7,550	5,260
4	5,260	2,710	7,550	12,470	4,900	3,590	4,900	2,710	2,710	2,430	6,380	4,220
5	6,770	3,000	9,950	9,140	4,550	19,600	7,940	2,430	2,710	2,160	5,630	4,220
6	6,770	6,190	14.230	6,770	4,220	11,190	7,550	2,430	3,900	1,900	4,500	3,900
7	6,770	8,340	12,900	7,160	4,220	7,550	7,160	5,630	3,900	1,900	3,900	4,220
8	6.770	6,770	10,360	6,000	10,980	6,380	6,380	3,290	6,380	1,900	6.770	14,230
9	9,540	4,900	8,740	6,000	8,740	5,260	7,550	5.260	5,260	1,640	6,380	9,540
10	9,140	4,550	7,550	5,260	6,770	4,550	6,000	3,900	3,900	3,590	4,220	6,770
11	9,140	4,550	6,770	5,630	6,190	4,060	4,900	3,590	3,290	14,230	4,220	5,630
12	18,400	6,380	6,770	4,900	5,260	4,900	4,220	3,000	2.710	6,770	4,900	4,900
13	27,800	23,400	7,160	4,220	4,900	4,550	3,590	2.710	2,430	4,220	4,220	8,340
14	10,360	24,400	6,380	4,550	4,550	4,060	3,590	2.430	1,640	3,290	3,900	6,380
15	10,360	27,600	6.380	4,550	3,900	6,770	3,590	2.430	1,900	2,430	3,900	4,900
16	9,140	32,800	6.000	4,900	3,900	7,160	3,290	2,160	1,900	2,160	4,900	4,900
17	6,770	25,900	6,380	4,900	3,900	6.770	3,000	2,430	1,900	2,160	3.590	4,220
18	6,380	13,780	6,380	4,900	4,220	4,900	3.000	2.430	1,900	2.160	3,590	4,220
19	6,000	9,540	5,260	5,260	4,550	3,740	3,000	2.430	1,640	2.430	5,260	3,900
20	5,260	7.940	5,630	4,900	5,630	3,400	3,000	2.430	1,640	2,430	5,630	4,220

Daily discharge, in second-feet, of New River at Radford, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
21	5,260	7,160	5,630	4,550	9,140	3,900	2,770	2,430	1,640	2,430	5,260	3,900
22	4,550	6,770	6,000	3,900	7,940	3,900	2,710	2,430	1,640	2,160	4,550	3,900
23	4,900	6,000	5,630	3,590	6,960	3,440	2,710	7,550	1,900	2,160	4,220	4,900
24	4,900	6,380	7,940	3,900	6,000	4,550	4,900	3,900	1,900	18,300	3,900	6,380
25	4,550	3,590	7,940	4,060	5,630	4,220	3,590	3,290	2,160	22,500	3,900	4,220
26	3,900	3,590	7,160	8,340	4,900	3,900	3,590	19,600	2,160	9,950	3,590	7,550
27	4,550	7,550	6,380	9,140	4,550	3,590	3,000	14,230	2,160	6,770	3,290	7,940
28	6,000	6,380	5,630	7,160	3,900	3,590	3,590	7,550	2,160	6,000	3,290	6,380
29	4,550	5,630	5,630	6,190	4,220	3,290	3,900	5,260	3,590	10,360	3,290	5,630
30	4,220	....	5,260	5,260	4,900	3,290	4,220	4,900	2,710	20,100	3,290	7,160
31	3,900	....	3,900	....	4,900	....	4,550	4,220	....	18,300	....	11,190
1909												
1	10,800	4,900	6,000	6,380	10,400	5,630	5,630	3,590	1,640	1,640	1,640	1,390
2	9,140	2,710	5,260	5,260	8,740	5,260	5,260	7,550	1,640	1,900	1,640	1,390
3	7,160	3,000	5,260	4,550	8,340	4,900	4,900	6,380	1,390	1,900	1,640	1,390
4	6,000	2,710	4,220	3,900	6,380	6,380	4,550	4,550	1,390	1,640	1,640	1,390
5	6,770	2,160	4,220	3,900	4,900	19,200	3,590	3,290	1,390	1,390	1,640	1,390
6	17,400	2,430	4,220	3,590	4,550	11,200	3,290	3,590	1,150	1,390	1,640	1,390
7	11,600	3,290	3,900	3,590	4,550	9,140	4,220	3,590	1,150	1,390	1,640	1,900
8	9,140	2,710	7,160	3,590	4,220	6,770	4,900	3,590	1,150	1,390	1,900	2,430
9	6,380	2,710	7,550	3,290	3,900	9,540	6,380	3,000	1,900	1,390	1,640	2,710
10	5,630	8,340	6,770	3,900	3,900	7,550	4,900	2,430	3,900	1,900	1,640	2,430
11	4,900	12,000	6,000	3,590	11,200	6,770	3,900	1,900	3,290	1,900	2,160	1,640
12	5,630	7,550	6,380	3,290	9,950	5,630	3,900	1,900	2,710	10,800	2,160	1,900
13	5,260	3,290	6,000	3,290	6,770	5,260	3,290	1,640	1,900	7,160	2,160	2,430
14	4,900	5,260	5,260	20,600	5,260	7,550	3,590	1,640	2,160	5,260	2,160	8,340
15	4,900	4,900	4,550	14,200	4,550	6,380	3,290	1,640	1,900	2,710	1,900	4,900
16	6,380	5,260	3,900	8,340	4,220	5,630	3,290	3,000	1,900	2,430	1,640	3,590
17	8,340	7,940	4,550	7,550	3,900	4,900	3,000	4,220	3,290	2,160	1,390	2,430
18	10,800	6,770	4,550	6,770	3,900	4,220	3,000	3,590	3,000	2,710	1,390	2,430
19	8,340	5,630	3,900	5,630	3,590	6,000	2,430	2,710	2,710	2,160	1,390	2,430
20	8,740	6,380	3,900	4,900	3,290	4,550	2,430	2,160	2,710	2,160	1,390	2,430
21	7,940	5,630	4,220	4,550	23,900	4,220	2,160	2,160	2,160	2,430	1,390	2,160
22	6,000	5,630	4,220	4,550	38,400	4,220	2,160	1,900	1,900	2,160	1,390	2,160
23	5,630	6,000	5,260	4,220	16,900	4,220	2,430	1,640	2,160	2,160	1,390	1,900
24	5,260	8,740	4,900	4,220	11,200	5,260	2,160	920	2,430	2,160	1,390	1,150
25	5,260	9,540	4,220	4,220	8,740	4,900	2,710	3,000	3,290	2,160	1,390	1,640
26	4,550	8,740	7,550	3,590	8,340	4,550	2,710	2,710	2,710	2,160	1,390	2,710
27	4,220	8,340	7,550	3,590	11,200	4,220	2,430	2,710	2,430	2,160	1,390	1,900
28	3,900	7,550	6,770	3,290	9,140	4,220	2,430	2,430	2,160	2,160	1,390	1,640
29	3,900	....	9,140	3,290	7,160	6,000	4,220	1,900	1,900	1,900	1,390	1,390
30	3,290	....	8,340	3,290	6,380	5,260	3,590	1,640	1,640	1,900	1,390	1,390
31	5,260	....	7,940	....	6,000	....	3,290	1,640	....	1,900	....	1,390
1910												
1	1,580	2,630	3,560	2,080	2,630	1,580	3,240	1,580	7,560	1,820	1,700	1,580
2	1,580	2,930	3,560	2,350	2,350	1,580	3,240	1,470	7,760	1,820	1,820	1,260
3	2,930	2,350	6,400	2,080	2,350	1,820	2,930	1,580	4,060	1,580	1,820	1,060
4	6,020	2,350	9,970	3,080	2,220	1,580	3,720	1,820	4,230	1,580	1,580	1,150
5	3,560	2,630	7,560	2,780	2,080	1,700	3,720	2,350	4,230	1,950	1,580	1,580
6	3,890	2,630	4,930	2,630	1,950	2,080	3,080	2,080	3,890	1,580	1,820	2,080
7	3,890	2,080	4,930	2,080	1,820	3,240	4,400	2,350	3,560	1,950	1,580	5,290
8	4,580	2,630	4,580	1,820	1,950	2,630	5,110	2,080	3,560	6,400	1,700	4,230
9	4,580	2,630	4,230	1,820	2,490	2,630	4,930	2,080	2,630	11,000	1,580	2,780
10	2,080	2,930	3,890	1,580	4,060	3,080	5,290	1,820	2,490	6,780	1,580	2,350
11	1,580	2,930	3,560	1,700	3,080	6,980	4,060	2,080	2,220	3,890	1,580	2,220
12	2,350	2,930	3,560	1,700	2,930	19,200	3,240	1,700	1,820	2,930	1,580	1,470
13	2,630	960	2,630	3,400	2,630	24,900	5,110	1,580	1,820	620	1,360	1,360
14	2,930	1,150	2,630	3,890	2,490	27,800	6,210	1,580	1,820	700	1,470	1,060
15	2,930	1,820	2,350	3,400	2,350	15,300	4,930	1,820	1,950	780	1,360	700

Daily discharge, in second-feet, of New River at Radford, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
16	2,350	5,650	2,630	2,780	2,080	13,100	3,400	1,580	1,950	620	1,470	1,360
17	2,080	6,020	2,490	2,930	2,350	10,200	4,230	1,820	1,360	620	1,700	1,700
18	2,080	21,500	2,630	5,650	2,350	7,170	6,590	1,580	1,360	1,580	1,820	1,700
19	2,350	16,000	2,490	3,720	2,630	6,590	5,110	1,820	1,360	1,820	1,580	1,820
20	2,630	7,170	2,490	3,080	2,630	5,840	3,240	1,580	1,580	2,080	1,580	1,820
21	3,560	8,350	2,630	2,780	2,080	4,930	3,240	1,820	1,580	1,820	1,580	1,470
22	3,890	6,020	2,630	2,780	2,350	5,110	2,490	1,820	1,260	2,220	1,470	1,360
23	5,290	5,290	2,630	2,490	2,930	5,110	2,490	2,080	1,360	2,080	1,580	1,150
24	4,580	4,930	2,490	2,350	3,890	4,760	2,350	1,820	1,150	1,820	1,260	1,150
25	3,890	4,230	2,350	2,490	4,230	6,980	2,080	1,950	1,150	1,700	1,150	1,360
26	3,560	3,560	2,350	2,930	4,930	5,840	1,950	1,820	1,360	1,580	1,360	1,820
27	2,930	3,560	2,350	3,890	4,760	4,580	1,820	2,350	1,820	1,700	1,360	2,350
28	2,630	3,560	2,080	3,240	3,720	3,560	1,820	2,080	1,820	1,820	1,700	2,350
29	1,580	....	2,080	3,080	2,630	3,400	1,580	2,080	2,080	1,580	1,820	2,630
30	2,630	....	2,080	2,630	2,490	2,780	1,580	1,820	1,950	1,580	1,700	2,780
31	2,930	....	1,950	....	1,820	....	1,150	1,360	....	1,580	....	3,240
1911												
1	4,930	6,980	2,080	4,060	3,890	2,630	1,820	1,060	5,400	1,320	1,260	816
2	7,950	5,290	1,820	3,720	4,230	2,220	1,360	924	4,090	1,430	888	960
3	12,100	4,230	1,820	3,400	3,890	1,700	1,260	924	2,960	2,490	979	2,160
4	15,600	3,400	1,820	5,290	3,720	1,950	1,360	960	2,080	2,660	924	2,110
5	8,350	3,240	2,080	10,400	3,240	2,080	1,580	2,320	1,600	1,850	764	1,900
6	5,650	3,240	2,350	20,100	3,080	2,220	2,080	4,030	1,280	1,650	1,360	1,870
7	4,930	2,930	3,560	14,400	3,240	3,890	1,820	2,300	789	1,450	1,560	2,130
8	4,580	3,240	5,650	12,700	3,240	3,720	5,110	1,820	960	1,320	2,490	2,160
9	2,930	6,590	7,560	11,600	3,240	3,080	2,490	1,600	870	1,680	2,550	2,080
10	3,080	10,600	10,600	8,950	3,240	2,350	2,080	1,360	1,060	1,900	1,820	1,980
11	2,780	7,560	9,560	7,560	2,780	2,080	2,490	1,150	1,060	2,160	1,340	2,080
12	2,220	5,840	6,780	6,780	2,630	3,400	1,950	924	1,170	2,190	2,220	2,050
13	2,350	4,760	5,840	6,980	3,080	2,080	1,820	1,540	979	1,900	2,490	2,080
14	2,220	4,400	4,930	8,150	5,290	2,080	1,950	1,800	1,300	1,650	2,000	2,130
15	2,350	2,930	5,290	10,200	6,210	1,470	1,950	1,340	1,090	1,680	1,900	3,240
16	2,220	3,720	4,400	12,100	4,230	1,470	1,820	1,190	780	1,950	2,460	5,110
17	1,820	3,080	3,720	8,950	3,400	1,360	1,470	1,090	716	1,600	2,490	5,040
18	2,080	2,930	3,400	7,170	3,400	1,360	1,580	1,060	716	20,200	2,000	3,790
19	2,080	3,240	3,560	6,400	3,240	1,470	1,360	998	870	11,100	1,680	3,020
20	2,220	3,240	2,930	6,590	2,630	1,700	1,260	942	578	4,970	2,630	2,780
21	2,220	3,080	3,240	7,360	2,490	2,080	1,260	870	652	3,120	2,430	2,720
22	3,080	2,350	2,930	6,780	1,470	1,950	1,150	550	3,210	3,120	2,160	3,050
23	6,020	2,080	2,780	5,650	2,350	1,700	960	716	4,060	3,590	2,160	9,270
24	5,470	2,080	2,350	4,930	2,630	1,470	960	732	2,780	1,850	2,430	8,670
25	4,400	2,080	2,630	4,400	2,630	1,700	1,060	592	1,340	1,650	2,160	7,640
26	3,890	2,350	2,780	3,890	2,490	1,950	1,060	700	1,280	1,770	2,490	7,720
27	3,080	2,490	3,240	3,890	1,950	1,820	888	1,360	1,950	1,380	2,410	7,790
28	3,080	2,350	4,400	3,890	1,700	2,780	1,130	1,600	2,000	1,150	2,220	7,480
29	3,400	....	4,400	3,720	1,700	3,240	979	5,150	1,450	1,400	852	6,550
30	4,580	....	3,890	3,890	1,820	1,950	979	4,440	1,470	1,360	1,060	4,230
31	8,350	....	3,890	....	1,950	....	1,110	5,360	....	1,190	....	4,340
1912												
1	4,930	3,890	6,020	8,750	5,650	3,560	3,720	2,490	1,380	2,080	1,450	1,450
2	4,930	4,230	4,760	9,150	5,290	2,930	3,720	2,220	1,210	1,950	1,450	1,150
3	4,230	3,400	4,600	13,800	4,580	3,240	2,930	1,820	1,600	1,950	1,540	2,220
4	3,890	2,080	4,200	10,400	4,060	3,890	3,400	3,890	1,300	1,950	998	2,080
5	2,630	1,720	4,200	7,950	3,890	3,240	4,230	3,890	1,210	1,580	1,700	2,080
6	1,340	....	6,000	6,780	4,060	2,930	6,780	4,580	1,130	1,540	1,510	2,780
7	....	....	5,300	6,400	4,230	2,930	4,930	5,290	1,110	1,540	1,820	2,350
8	....	....	4,900	6,400	4,230	2,930	3,890	5,650	1,560	1,750	4,930	2,220
9	....	....	7,200	5,650	3,890	2,630	3,080	4,060	1,800	1,630	4,400	2,080
10	....	....	7,950	5,290	3,560	2,490	3,080	2,780	1,950	1,490	3,400	1,950

Daily discharge, in second-feet, of New River at Radford, Va., for 1906-1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
11			7,170	4,930	3,400	2,490	3,240	2,220	1,630	1,320	2,350	1,720
12			6,400	4,580	25,400	2,350	3,720	2,490	1,430	1,340	2,220	1,630
13			10,800	4,230	14,200	2,220	3,720	1,700	1,340	1,320	2,080	1,820
14		2,630	10,400	4,060	8,350	2,220	3,400	1,700	1,510	1,600	1,950	1,950
15		2,490	17,800	4,060	6,780	2,780	3,080	1,820	1,560	2,080	2,220	1,950
16		2,220	27,300	4,060	12,100	3,080	2,780	2,080	1,380	2,080	2,350	1,280
17		2,220	14,200	4,060	14,700	3,240	2,350	2,350	1,700	1,630	1,950	1,950
18		2,780	10,400	4,400	9,150	2,630	2,350	1,950	2,220	1,630	1,320	1,950
19		2,930	7,950	4,060	7,560	2,780	3,080	1,770	2,490	1,820	2,080	1,800
20		3,400	6,780	3,720	6,020	2,350	2,930	1,630	2,780	1,630	2,080	1,490
21	4,400	3,890	6,400	3,560	5,290	2,080	3,080	1,650	2,080	1,110	1,770	1,630
22	4,400	16,400	5,650	4,760	4,760	1,950	3,080	2,350	1,560	1,820	1,360	1,750
23	3,400	9,560	5,290	4,760	4,400	2,220	2,490	2,220	3,720	1,800	1,400	1,320
24	3,240	6,400	6,020	4,580	4,060	2,930	2,220	1,820	11,200	1,540	1,540	1,950
25	3,080	7,170	9,560	4,230	3,720	3,560	2,220	1,560	7,950	1,800	1,540	1,320
26	3,080	7,560	8,750	3,560	3,560	4,930	2,080	1,510	6,020	1,700	1,540	1,150
27	3,080	12,900	7,170	3,560	3,400	4,660	2,350	1,510	3,400	1,700	1,950	1,150
28	2,930	9,560	6,020	3,720	3,400	4,930	2,080	1,680	3,080	1,490	1,580	1,380
29	3,080	7,170	22,000	4,400	3,890	2,930	1,680	1,360	3,080	1,540	1,400	2,080
30	6,020	....	17,400	6,020	4,060	3,080	1,620	1,510	2,490	1,630	1,680	1,560
31	7,950	....	11,200	....	3,890	....	1,680	1,540	....	1,600	....	2,630
1913												
1	3,890	3,720	8,350	6,640	3,060	5,610	2,370	1,660	2,120	1,780	1,780	1,780
2	3,080	3,400	7,950	5,610	2,920	4,610	2,240	1,590	1,750	1,900	1,660	4,440
3	2,930	3,240	4,230	4,940	2,780	3,970	4,940	1,590	1,870	1,780	1,610	4,110
4	2,930	3,400	3,400	4,610	2,780	7,000	5,610	1,160	2,780	1,780	2,150	3,160
5	3,080	3,720	3,080	4,280	2,780	4,610	5,950	1,180	3,360	1,640	2,020	2,560
6	2,930	3,890	2,930	3,820	2,780	4,130	3,970	1,260	3,360	1,350	1,900	2,280
7	3,240	2,930	2,350	3,660	2,780	3,660	2,920	1,240	3,060	1,540	1,780	2,560
8	2,930	1,820	2,220	3,660	2,640	5,950	2,370	1,870	2,240	1,780	1,610	2,280
9	2,630	1,820	2,350	3,510	2,780	4,280	2,240	1,660	2,240	1,900	4,110	2,280
10	2,220	2,080	2,350	3,360	2,640	4,280	1,990	1,610	1,990	2,020	3,950	2,420
11	2,350	2,780	3,240	3,660	2,500	3,660	2,120	2,120	1,870	1,900	3,000	2,280
12	2,490	2,490	3,240	9,230	2,500	3,970	3,060	2,240	1,750	1,660	2,560	1,900
13	2,630	2,490	3,240	21,000	2,370	3,510	2,240	3,060	1,640	1,320	2,280	2,020
14	2,630	1,820	19,200	14,800	2,370	3,360	1,990	2,240	1,570	1,780	2,280	2,020
15	2,350	1,950	28,300	9,620	2,240	2,920	2,240	2,240	1,240	1,780	2,280	2,150
16	2,350	1,820	24,400	8,100	2,640	2,780	2,120	1,990	1,870	1,900	1,900	2,150
17	2,080	2,080	13,400	7,720	3,510	2,640	1,990	1,870	1,870	1,780	2,020	2,020
18	2,080	1,800	7,560	6,640	4,280	2,500	1,990	1,340	1,870	1,610	2,700	1,780
19	1,950	2,220	6,780	5,610	3,660	2,370	1,870	2,500	1,730	1,660	2,420	1,900
20	1,820	2,930	6,020	4,940	3,060	2,500	1,570	2,500	1,990	2,850	2,280	2,020
21	1,950	2,490	4,930	3,970	3,060	2,370	1,730	3,060	9,620	3,000	1,900	1,780
22	1,950	2,930	5,650	4,280	3,970	2,370	1,870	2,640	10,000	2,850	1,900	1,480
23	2,220	2,930	5,290	3,970	14,400	3,210	1,750	2,240	5,610	2,280	2,020	2,150
24	1,800	2,780	4,580	3,820	27,500	3,360	1,590	2,120	3,660	2,280	1,640	2,020
25	1,820	2,630	4,230	3,510	15,300	3,510	1,870	2,370	3,510	4,270	2,150	1,900
26	2,080	2,220	4,760	3,360	8,470	4,450	1,390	1,990	2,500	5,270	2,020	2,150
27	3,080	3,080	38,400	3,510	8,470	3,360	1,100	1,870	1,750	3,630	2,020	3,310
28	7,170	7,170	33,600	3,820	13,200	3,060	1,180	1,750	1,750	2,850	1,640	2,850
29	8,750	....	14,800	3,510	10,000	2,500	1,390	1,660	1,280	2,150	1,780	2,700
30	7,170	....	10,000	3,060	7,360	2,500	1,410	2,120	1,750	2,280	2,020	2,420
31	5,290	....	8,470	....	7,000	....	1,640	2,240	....	2,020	....	2,700
1914												
1	2,280	9,230	4,600	8,470	3,000	1,900	1,430	1,220	2,280	868	1,780	10,400
2	2,280	8,470	4,270	8,470	3,000	1,900	1,180	1,020	1,900	925	1,100	14,000
3	2,150	5,610	3,310	7,000	2,850	1,900	1,060	944	1,900	868	1,480	13,600
4	1,900	4,110	3,630	5,950	2,700	1,900	1,180	1,120	1,900	982	1,780	11,600
5	2,700	3,950	3,950	5,610	3,000	1,780	1,020	1,060	1,540	1,300	1,570	38,400

Daily discharge, in second-feet, of New River at Radford, Va., for 1906–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												
6	2,700	4,440	4,600	4,440	3,630	1,600	982	1,020	1,480	2,280	1,640	20,100
7	2,850	9,620	4,110	4,600	3,950	1,780	1,060	1,180	694	1,900	1,450	12,000
8	2,560	9,620	3,950	3,950	3,950	2,150	2,020	868	830	2,020	1,140	8,850
9	3,160	7,360	3,790	5,270	3,310	2,280	1,660	868	1,020	2,150	1,060	7,000
10	5,270	5,610	3,310	4,600	3,000	1,900	1,780	868	982	1,500	1,780	6,300
11	6,300	4,600	3,950	3,950	3,000	1,780	1,450	1,390	1,220	868	1,540	5,270
12	4,930	4,600	7,360	3,630	3,000	1,780	1,600	1,200	1,390	982	1,780	4,930
13	3,470	4,270	7,720	3,470	2,700	1,780	1,390	1,060	1,660	1,260	1,660	4,270
14	2,560	3,790	7,000	3,470	2,560	1,660	2,700	982	1,060	1,020	1,660	4,440
15	2,560	3,310	5,950	4,930	2,020	1,590	3,310	1,040	982	1,140	1,780	3,630
16	3,000	3,000	5,610	9,230	2,150	1,540	2,850	1,180	830	7,360	6,640	2,560
17	3,000	3,000	5,610	7,720	2,280	1,600	3,630	982	796	11,200	4,600	2,850
18	3,000	3,630	6,300	6,640	2,280	1,540	2,700	1,060	982	4,930	3,470	3,000
19	3,000	6,300	6,980	5,610	2,420	1,780	2,150	1,220	1,430	3,160	2,700	3,310
20	3,000	12,000	5,950	5,610	2,280	1,600	1,900	944	1,220	2,700	2,280	4,600
21	5,610	13,600	5,270	6,300	2,150	1,660	1,780	1,020	1,540	2,150	1,900	6,300
22	4,110	10,000	4,930	5,610	2,150	982	1,480	1,260	1,660	2,020	1,900	8,470
23	3,310	8,100	4,930	4,930	2,280	1,570	1,260	925	1,660	1,900	1,900	7,000
24	3,310	6,640	4,600	4,440	1,900	1,220	1,390	925	1,660	2,020	2,020	5,610
25	4,270	5,950	4,600	4,110	1,900	1,020	1,390	925	1,660	2,150	2,150	5,610
26	4,930	5,610	4,440	3,790	1,780	868	1,320	1,780	1,180	2,150	2,150	10,000
27	3,950	5,610	4,270	3,790	1,900	745	906	3,000	1,180	2,020	2,150	8,850
28	3,000	4,930	4,110	3,630	1,900	745	1,220	3,310	982	1,780	2,150	6,300
29	3,000	....	4,270	3,310	1,900	982	1,020	5,610	1,020	1,780	1,780	6,300
30	2,700	....	4,930	3,160	2,020	1,260	1,060	3,470	1,180	1,660	2,020	8,470
31	4,930	....	7,360	....	1,900	....	1,060	2,420	....	1,780	....	9,620

NOTE.—Discharge determined as follows: 1906 to Mar. 26, 1913, from a rating curve well defined between 800 and 17,000 second feet and fairly well defined between 17,000 and 24,000 second-feet; above 24,000 second-feet curve is based on comparison of records with those on New River at Hinton, Kanawha Falls, and Charleston, and is poorly defined; Mar. 27 to Sept. 30, 1913, from a well-defined rating curve which differs from previous curves 5 to 7 per cent, the greatest difference being at high stage; Oct. 1, 1913, to Dec. 31, 1914, from a well-defined rating curve which is the same as previous curve above a discharge of 5,600 second-feet.

Discharge estimates above 16,000 second-feet 1906 to 1909 supersede those previously published in U. S. Geological Survey water-supply papers.

Discharge estimated, because of ice, from climatologic records, as follows: Jan. 7-20, 1912, 1,500 second-feet; Feb. 6-13, 1912, 1,800 second-feet. These estimates are based on insufficient data and should therefore be used with caution.

Monthly discharge of New River at Radford, Va., for 1898–1914.

[Drainage area, 2,720 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1898						
August	14,230	2,710	4,747	1.74	2.01	
September	27,800	2,160	5,720	2.10	2.34	
October	46,100	3,000	9,050	3.33	3.84	
November	5,260	3,000	4,117	1.51	1.68	
December	10,770	3,590	5,228	1.92	2.21	

Monthly discharge of New River at Radford, Va., for 1898–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1899						
January	16,900	3,900	5,890	2.17	2.50	
February	24,900	3,590	11,500	4.23	4.40	
March	49,200	7,160	16,400	6.03	6.95	
April	17,400	4,550	8,041	2.95	3.29	
May	8,740	3,590	5,697	2.09	2.41	
June	16,400	2,430	4,800	1.76	1.96	
July	4,550	1,640	2,452	.900	1.04	
August	4,550	1,150	2,192	.804	.93	
September	6,770	510	2,717	.997	1.11	
October	1,640	510	1,107	.406	.47	
November	4,550	510	1,376	.505	.56	
December	19,200	700	3,140	1.15	1.33	
The year	49,200	510	5,400	1.99	26.95	
1900						
January	12,470	250	3,933	1.44	1.66	
February	20,600	2,430	6,920	2.54	2.64	
March	26,400	5,260	10,200	3.75	4.32	
April	16,900	3,590	6,700	2.46	2.74	
May	8,340	3,900	4,730	1.74	2.01	
June	8,340	3,590	5,094	1.87	2.09	
July	8,740	1,640	3,082	1.13	1.30	
August	2,710	120	1,242	.456	.53	
September	11,820	170	2,220	.815	.91	
October	117,000	700	7,170	2.64	3.04	
November	35,300	2,430	5,590	2.06	2.30	
December	16,900	3,290	5,760	2.12	2.44	
The year	117,000	120	5,210	1.92	25.98	
1901						
January	16,900	2,710	4,640	1.71	1.97	
February	6,380	1,390	3,696	1.36	1.42	
March	21,500	360	4,680	1.72	1.98	
April	92,200	4,220	15,300	5.62	6.27	
May	117,000	4,550	15,900	5.85	6.74	
June	38,400	6,000	13,500	4.96	5.53	
July	19,600	4,550	8,490	3.12	3.60	
August	57,600	4,220	20,200	7.43	8.57	
September	22,700	4,220	8,030	2.95	3.29	
October	12,470	2,710	4,952	1.82	2.10	
November	5,260	1,640	2,500	.917	1.02	
December	98,000	1,900	15,200	5.59	6.44	
The year	117,000	360	9,810	3.61	48.93	
1902						
January	16,900	4,220	6,770	2.49	2.87	
February	57,100	3,900	10,400	3.82	3.98	
March	57,100	4,550	10,400	3.82	4.40	
April	9,140	3,900	6,041	2.22	2.48	
May	4,550	1,150	2,707	.993	1.14	
June	18,700	2,430	6,220	2.29	2.56	
July	9,950	3,000	4,666	1.71	1.97	
August	5,630	1,640	3,729	1.37	1.58	
September	3,290	1,150	1,919	.704	.785	
October	4,220	1,390	2,391	.877	1.01	
November	5,260	1,150	2,452	.900	1.00	
December	6,000	2,160	3,450	1.27	1.46	
The year	57,100	1,150	5,060	1.86	25.23	

Monthly discharge of New River at Radford, Va., for 1898–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1903						
January	20,100	2,710	5,610	2.06	2.38	
February	40,400	4,220	8,400	3.09	3.22	
March	42,000	4,220	11,900	4.38	5.05	
April	16,900	6,000	9,390	3.45	3.85	
May	6,770	3,000	4,342	1.59	1.83	
June	18,300	3,000	6,380	2.35	2.62	
July	8,340	2,430	4,578	1.68	1.94	
August	9,950	2,160	3,949	1.45	1.67	
September	14,230	1,390	2,793	1.02	1.14	
October	6,000	1,150	2,232	.819	.94	
November	3,290	920	2,081	.764	.85	
December	2,430	510	1,453	.533	.62	
The year	42,000	510	5,230	1.92	26.11	
1904						
January	8,340	510	2,184	0.801	0.92	
February	7,940	1,150	3,208	1.18	1.27	
March	16,900	1,390	4,480	1.65	1.90	
April	3,900	1,900	2,775	1.02	1.14	
May	12,040	2,160	4,149	1.52	1.75	
June	12,900	510	3,940	1.45	1.62	
July	5,630	1,390	2,876	1.06	1.22	
August	5,630	1,390	3,010	1.10	1.27	
September	2,710	1,150	1,484	.545	.608	
October	1,150	700	835	.306	.353	
November	2,430	920	1,402	.514	.573	
December	3,590	920	1,643	.603	.695	
The year	16,900	510	2,660	.978	13.32	
1905						
January	9,540	1,640	2,777	1.02	1.18	
February	18,700	1,640	4,500	1.65	1.72	
March	9,950	2,160	4,435	1.63	1.88	
April	5,260	1,640	2,763	1.01	1.13	
May	23,400	1,640	6,290	2.31	2.66	
June	2,710	920	1,588	.583	.65	
July	90,800	1,150	9,040	3.32	3.83	
August	11,190	920	4,766	1.75	2.02	
September	7,550	1,640	2,885	1.06	1.18	
October	2,710	1,390	1,805	.662	.76	
November	1,900	1,390	1,610	.591	.66	
December	11,610	1,150	4,312	1.58	1.82	
The year	90,800	920	3,910	1.44	19.49	
1906						
January	30,800	2,160	7,960	2.93	3.38	
February	7,160	2,430	3,930	1.44	1.50	
March	14,200	3,290	5,230	1.92	2.21	
April	11,600	2,430	4,550	1.67	1.86	
May	5,260	2,430	3,100	1.14	1.31	
June	10,800	2,160	3,970	1.46	1.63	
July 1–15	2,710	2,160	2,310	.849	.47	
1907						
May 6–31	13,800	2,430	3,620	1.33	1.29	B.
June	52,900	1,640	8,470	3.11	3.47	B.
July	5,630	2,160	3,530	1.30	1.50	A.
August	4,550	1,900	2,510	.923	1.06	A.
September	35,800	1,640	5,190	1.91	2.13	A.
October	3,900	1,640	2,210	.812	.94	A.
November	8,340	2,430	4,120	1.51	1.68	A.
December	16,900	2,160	5,920	2.18	2.51	A.

Monthly discharge of New River at Radford, Va., for 1898–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1908						
January	38,400	3,900	8,190	3.01	3.47	A.
February	32,800	2,710	9,540	3.51	3.79	A.
March	14,200	3,900	7,300	2.68	3.09	A.
April	20,100	3,590	6,630	2.44	2.72	A.
May	11,000	3,900	5,500	2.02	2.33	A.
June	19,600	3,290	5,260	1.93	2.15	A.
July	7,940	2,710	4,480	1.65	1.90	A.
August	19,600	2,160	4,450	1.64	1.89	A.
September	6,380	1,640	2,710	.996	1.11	A.
October	22,500	1,640	5,960	2.19	2.52	A.
November	9,540	3,290	4,880	1.79	2.00	A.
December	14,200	3,590	5,860	2.15	2.48	A.
The year	38,400	1,640	5,890	2.17	29.45	
1909						
January	17,400	3,290	6,880	2.53	2.92	A.
February	12,000	2,160	5,720	2.10	2.19	A.
March	9,140	3,900	5,600	2.06	2.38	A.
April	20,600	3,290	5,300	1.95	2.18	A.
May	38,400	3,290	8,510	3.13	3.61	A.
June	19,200	4,220	6,320	2.32	2.59	A.
July	6,380	2,160	3,550	1.31	1.51	A.
August	7,550	920	2,860	1.05	1.21	A.
September	3,900	1,150	2,170	.798	.89	A.
October	10,800	1,390	2,540	.934	1.08	A.
November	2,160	1,390	1,610	.592	.66	A.
December	8,340	1,150	2,250	.827	.95	A.
The year	38,400	920	4,440	1.63	22.17	
1910						
January	6,020	1,580	3,100	1.14	1.31	A.
February	21,500	960	4,690	1.72	1.79	A.
March	9,970	1,950	3,440	1.26	1.45	A.
April	5,650	1,580	2,770	1.02	1.14	A.
May	4,930	1,820	2,750	1.01	1.16	A.
June	27,800	1,580	6,830	2.51	2.80	A.
July	6,590	1,150	3,490	1.28	1.48	A.
August	2,350	1,360	1,850	.680	.78	A.
September	7,760	1,150	2,560	.941	1.05	A.
October	11,000	620	2,310	.849	.98	A.
November	1,820	1,150	1,570	.577	.64	A.
December	5,290	700	1,940	.713	.82	A.
The year	27,800	620	3,090	1.14	15.40	
1911						
January	15,600	1,820	4,520	1.66	1.91	B.
February	10,600	2,080	3,940	1.45	1.51	B.
March	10,600	1,820	4,070	1.50	1.73	B.
April	20,100	3,400	7,460	2.74	3.06	B.
May	6,210	1,470	3,070	1.13	1.30	B.
June	3,890	1,360	2,160	.794	.89	A.
July	5,110	888	1,620	.596	.69	A.
August	5,360	550	1,660	.610	.70	A.
September	5,400	578	1,680	.618	.69	B.
October	20,200	1,150	2,860	1.05	1.21	C.
November	2,630	764	1,870	.688	.77	B.
December	9,270	816	3,840	1.41	1.63	B.
The year	20,200	550	3,220	1.18	16.09	

Monthly discharge of New River at Radford, Va., for 1898–1914—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1912						
January	7,950	....	2,830	1.04	1.20	D.
February	16,400	....	4,450	1.64	1.77	C.
March	27,300	4,200	9,030	3.32	3.83	C.
April	13,800	3,560	5,530	2.03	2.26	B.
May	25,400	3,400	6,310	2.32	2.68	C.
June	4,930	1,950	2,990	1.10	1.23	B.
July	6,780	1,630	3,000	1.12	1.25	B.
August	5,650	1,360	2,420	.890	1.03	B.
September	11,200	1,110	2,560	.941	1.05	B.
October	2,080	1,110	1,670	.614	.70	B.
November	4,930	998	1,990	.732	.82	B.
December	2,780	1,150	1,800	.662	.76	B.
The year	27,300	....	3,720	1.37	18.63	
1913						
January	8,750	1,800	3,090	1.14	1.31	B.
February	7,170	1,800	2,810	1.03	1.07	B.
March	38,400	2,220	9,330	3.43	3.95	B.
April	21,000	3,060	5,740	2.11	2.35	A.
May	27,500	2,240	5,670	2.08	2.40	A.
June	7,000	2,370	3,570	1.31	1.46	A.
July	5,950	1,100	2,350	.864	1.00	A.
August	3,060	1,160	1,970	.724	.83	B.
September	10,000	1,280	2,790	1.03	1.15	A.
October	5,270	1,320	2,210	.812	.94	A.
November	4,110	1,610	2,180	.801	.89	A.
December	4,440	1,480	2,370	.871	1.00	A.
The year	38,400	1,100	3,680	1.35	18.35	
1914						
January	6,300	1,900	3,410	1.25	1.44	B.
February	13,600	3,000	6,320	2.32	2.42	B.
March	7,720	3,310	5,000	1.84	2.12	A.
April	9,230	3,160	5,190	1.91	2.13	A.
May	3,970	1,780	2,540	.934	1.08	A.
June	2,280	745	1,560	.574	.64	A.
July	3,600	906	1,650	.607	.70	A.
August	5,610	868	1,480	.544	.63	A.
September	2,280	694	1,330	.489	.55	A.
October	11,200	868	2,280	.838	.97	A.
November	6,640	1,060	2,100	.772	.86	A.
December	38,400	2,560	8,500	3.12	3.60	A.
The year	38,400	694	3,430	1.26	17.14	

NOTE.—Discharge estimates above 16,000 second-feet for years previous to 1910 have been revised and, as published herewith, supersede those published in Bulletin III, Hydrography of Virginia, and in U. S. Geological Survey water-supply papers.

Discharge estimates from August to December, 1899, July, 1900, the year 1902, and January to August, 1903, subject to errors due to errors in gage and inaccuracies in gage readings. Ice present Jan. 1-9, 1900, and Jan. 26-29, 1905, but no correction was made in estimates. Jan. 5 and 6, 1905, water was thrown from gage by ice and discharge estimates were corrected. See footnote to daily discharge table for estimates for period during 1912 when discharge relation was affected by ice.

NEW RIVER AT FAYETTE, W. VA.

Location.—At the highway bridge connecting Fayette and South Fayette, 850 feet above mouth of Wolf Creek.

Drainage area.—6,800 square miles.

Records available.—July 16, 1908, to December 31, 1914. Records July 29, 1895, to May 22, 1901, and August 11, 1902, to December 31, 1904, obtained by United States Geological Survey, but computed results for these periods are only fair and are not included in this report.

Gage.—Chain attached to the bridge; read twice daily; wire gage used previous to November 20, 1903.

Discharge measurements.—Made from the bridge.

Channel and control.—Banks high and not subject to overflow. Bed composed of rock strewn with large bowlders, which cause boils and eddies at high stages. Control practically permanent.

Extremes of stage.—Flood of 1878 reached a height of about 53 feet referred to the gage datum. Maximum stage recorded since reëstablishment in 1908: 36.5 feet, March 28, 1913. Minimum stage recorded since 1908: —0.4 foot, October 7, 1914.

Winter flow.—Discharge relation little if at all affected by ice.

Accuracy.—Gage heights previous to 1908, and particularly those observed with a wire gage, subject to considerable error.

Computation of discharge for years since 1908 and revisions for previous years withheld because of insufficient data.

Discharge measurements of New River at Fayette, W. Va., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
Aug. 13	W. G. Hoyt	[a]3.24	4,780
Aug. 14	do	[b]3.09	4,270
Sept. 19	W. M. O'Neill	1.32	2,540
Sept. 21	do	[c]1.50	2,730
Sept. 21	do	1.24	2,530
1909			
Apr. 2	H. J. Jackson	6.94	13,000
Apr. 14	do	[d]8.11	17,100
June 26	do	4.24	6,820
Nov. 20	A. H. Horton	1.30	2,660
Nov. 20	do	1.30	2,680
Dec. 1	G. L. Parker	1.10	2,390
1910			
Mar. 7	Horton and Bailey	6.88	13,000
Mar. 7	do	6.90	12,900
Mar. 28	C. T. Bailey	2.68	4,340
June 18	H. J. Jackson	16.02	46,700
June 18	do	14.68	40,900
June 19	do	11.17	26,800
1910			
June 19	H. J. Jackson	10.72	25,200
June 20	do	9.62	21,500
June 20	do	9.05	19,300
Oct. 12	C. T. Bailey	3.72	5,420
1912			
Mar. 26	C. T. Bailey	13.15	35,100
Sept. 10	do	.48	2,070
1913			
Mar. 28	A. H. Horton	[e]33.2	[f]147,000
June 19	H. J. Jackson	3.10	4,690
Nov. 15	Peterson and Walters	6.05	10,400
1914			
Oct. 26	Mathers and Morgan	1.17	2,510
Nov. 9	do	.15	1,710
Nov. 10	do	.31	1,780

[a] Stage fell 0.5 foot during measurement.
[b] Gage height fell 1.78 feet during measurement.
[c] Gage height is approximate.
[d] Gage height rose 0.72 foot during measurement.
[e] ± 0.5 foot.
[f] Velocities for this measurement determined by means of surface floats. A coefficient of 0.85 was used to reduce the observed velocities to mean velocities.

Daily gage height, in feet, of New River at Fayette, W. Va., for 1908–1914.

[J. R. Durrett, A. E. Pierson, and C. J. Henry, observers.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908							1908						
1	......	3.82	3.24	2.22	10.27	2.78	16	......	2.10	1.56	1.44	2.72	5.86
2	......	3.72	2.91	1.87	7.60	2.76	17	......	2.10	1.48	1.38	2.42	5.08
3	......	3.52	2.58	1.50	6.40	2.78	18	......	2.08	1.42	1.34	2.55	4.70
4	......	2.81	2.28	1.22	6.16	2.98	19	......	2.06	1.35	1.31	3.04	4.36
5	......	2.28	2.08	1.07	5.48	3.45	20	2.32	2.14	1.26	1.36	2.82	4.61
6	......	2.16	2.44	.95	4.24	3.32	21	2.42	2.04	1.20	1.38	2.62	4.54
7	......	2.11	3.12	.93	3.86	3.19	22	2.22	1.90	1.17	1.34	2.50	4.36
8	......	2.65	3.65	.95	4.22	3.38	23	2.26	1.69	1.06	1.32	3.45	4.44
9	......	4.44	3.65	.94	4.52	4.48	24	2.64	1.68	1.08	1.37	3.65	4.30
10	......	4.94	3.72	.96	4.49	......	25	3.98	3.62	1.06	12.38	3.42	5.09
11	......	4.58	2.87	1.30	3.48	......	26	3.88	2.88	1.01	9.09	3.20	8.04
12	......	3.92	2.35	7.20	2.34	......	27	3.72	9.76	.96	6.92	3.02	8.10
13	......	3.43	1.98	4.71	2.10	7.90	28	5.54	7.78	.94	5.35	2.92	7.80
14	......	2.84	1.80	3.12	2.60	7.48	29	5.78	6.42	1.02	4.66	2.85	7.54
15	......	2.30	1.63	1.70	3.11	6.82	30	4.88	4.96	1.19	7.22	2.81	8.00
							31	4.08	3.70	......	11.36	.....	11.02

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	12.32	4.28	7.36	7.62	13.32	6.40	5.42	3.66	0.58	1.39	1.38	1.10
2	9.86	3.15	6.76	7.04	13.62	6.24	5.96	3.68	.68	1.17	1.29	1.12
3	8.18	2.98	7.32	7.54	10.98	5.42	5.92	5.21	.84	1.11	1.22	1.02
4	7.14	3.52	8.25	6.12	9.16	4.99	5.45	5.32	1.03	1.06	1.17	1.02
5	6.94	4.50	8.46	5.76	7.28	8.72	4.12	4.10	1.10	.89	1.14	.98
6	12.81	4.60	8.38	5.64	6.63	9.61	10.62	3.93	1.10	.93	1.12	.95
7	12.85	4.59	10.30	5.78	6.08	7.40	12.95	3.52	1.12	.95	1.12	1.15
8	9.75	4.20	11.05	5.25	5.66	6.18	8.20	3.08	1.17	.87	1.00	1.10
9	8.19	4.69	12.45	4.50	5.42	6.55	6.40	3.43	1.45	.96	1.00	1.35
10	6.76	6.52	12.20	4.68	7.01	7.65	5.70	3.16	3.01	.97	.90	1.80
11	6.05	11.55	11.24	4.39	10.02	7.55	4.95	2.31	3.33	1.95	.90	2.30
12	5.16	11.60	10.38	4.20	10.38	7.26	4.25	2.03	2.91	4.27	.90	1.95
13	5.07	8.65	8.55	4.12	8.76	6.06	4.05	1.90	2.35	7.82	2.20	2.05
14	5.88	7.49	7.92	6.78	7.16	5.89	3.92	1.83	2.06	5.65	1.83	3.65
15	6.10	7.16	7.60	16.62	6.10	5.88	3.60	2.34	1.27	4.12	1.78	9.68
16	6.74	7.00	7.09	11.72	5.45	5.48	3.50	3.06	1.47	3.91	1.74	7.25
17	12.19	8.08	6.58	8.76	4.98	5.10	3.26	3.53	1.79	3.10	1.69	5.50
18	10.94	9.26	6.10	7.58	4.57	5.26	3.09	4.02	3.15	3.08	1.58	4.25
19	10.19	8.85	5.50	6.70	4.14	5.22	2.79	4.02	5.25	2.82	1.54	3.25
20	9.28	7.74	5.19	6.12	3.95	5.20	2.69	3.30	5.76	2.52	1.16	2.65
21	8.54	8.10	5.58	5.91	4.12	4.78	2.38	2.40	5.29	2.18	1.21	2.00
22	8.02	8.20	6.36	6.55	10.45	4.22	2.14	1.92	4.99	2.12	1.20	1.80
23	7.75	9.20	6.59	7.48	12.14	3.85	2.02	1.80	3.13	2.10	1.40	1.15
24	7.36	9.20	7.02	8.54	8.54	3.58	2.08	1.73	2.05	2.30	1.35	.75
25	7.22	10.70	8.28	8.91	7.98	4.56	2.19	1.58	3.03	2.24	1.50	1.10
26	7.10	11.20	12.22	7.68	7.82	4.34	2.09	1.53	2.88	2.05	1.30	1.85
27	6.58	9.20	11.20	6.36	11.66	4.02	2.05	1.39	2.85	1.88	1.45	1.30
28	6.12	8.32	10.75	6.10	11.14	4.79	2.18	1.28	2.18	1.74	1.40	1.35
29	5.68	....	10.90	7.70	8.86	4.84	2.19	1.08	1.86	1.66	1.60	1.35
30	5.20	....	10.85	6.25	7.20	5.26	2.79	1.08	1.47	1.58	1.20	1.30
31	4.90	....	9.20	....	6.66	....	3.32	.97	....	1.47	....	.70
1910												
1	0.45	3.80	7.95	2.35	5.42	3.60	3.68	2.10	1.45	2.08	1.11	2.38
2	1.68	3.45	12.32	2.25	4.90	3.05	3.39	2.00	2.42	1.68	1.22	2.00
3	3.32	3.42	11.45	2.22	4.35	2.75	3.14	1.92	5.76	1.48	1.19	1.85
4	5.32	4.55	9.70	2.85	3.95	2.48	4.42	1.75	4.90	1.22	1.11	1.28
5	7.05	5.62	8.15	3.77	3.60	2.40	5.66	1.82	4.50	1.08	1.09	1.08

Daily gage height, in feet, of New River at Fayette, W. Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	5.95	5.42	7.12	4.28	3.34	7.35	5.70	1.94	4.32	.94	1.00	1.86
7	8.38	4.96	6.85	3.65	3.15	8.25	5.78	2.10	4.12	.84	1.04	2.90
8	10.20	3.52	6.78	3.15	3.24	6.95	5.86	2.04	3.50	.96	1.05	3.82
9	9.15	3.60	6.35	2.85	3.69	5.55	5.69	1.80	2.98	2.88	.90	4.00
10	6.95	4.22	5.78	2.58	4.20	4.78	5.99	1.73	2.55	5.85	.76	3.00
11	5.05	4.30	5.48	2.38	4.84	5.70	5.82	1.82	2.20	4.90	.74	2.50
12	4.12	4.10	5.25	2.48	4.98	9.40	4.64	1.54	2.00	3.62	.80	2.18
13	3.55	3.25	5.18	3.58	4.72	14.15	4.18	1.38	1.92	2.72	.76	2.20
14	3.78	3.08	5.38	5.35	4.62	19.00	5.08	1.19	1.94	2.25	.72	1.80
15	3.98	3.28	5.28	6.12	4.82	16.35	6.32	1.15	1.84	1.92	.72	1.30
16	3.55	4.30	4.95	5.39	4.39	14.95	5.68	1.22	1.76	1.64	.62	1.02
17	3.20	7.32	4.70	4.61	3.90	21.95	4.95	1.35	1.55	1.43	.72	.55
18	3.25	11.20	4.08	5.02	3.62	15.94	7.82	1.26	1.36	1.28	.85	.30
19	7.18	15.30	3.82	6.15	3.72	11.16	9.48	1.24	1.19	1.10	.94	1.60
20	7.80	10.92	3.58	6.30	3.82	9.19	7.70	1.12	1.06	1.10	.84	1.78
21	8.28	8.45	3.42	6.42	3.85	8.90	5.75	.92	.92	1.08	.89	1.50
22	13.32	7.50	3.26	7.08	3.80	7.64	4.58	.92	.90	1.38	.78	1.25
23	11.72	7.90	3.18	6.52	3.84	7.44	3.86	1.26	.88	1.78	.62	.70
24	8.55	7.95	3.15	7.16	3.95	7.06	3.40	1.18	.81	1.81	.66	2.00
25	6.90	6.98	2.95	7.10	4.30	7.02	3.19	1.32	.72	1.54	.66	2.00
26	6.02	6.05	2.75	6.85	4.82	6.22	2.94	1.60	.82	1.31	.62	2.62
27	5.48	5.40	2.78	6.40	5.22	6.02	2.52	1.42	.71	1.24	.60	2.68
28	5.48	5.08	2.66	6.60	4.90	5.04	2.32	1.80	1.48	1.18	1.28	3.65
29	5.15	....	2.55	6.46	4.22	4.42	2.18	1.40	1.98	1.18	1.90	3.58
30	4.48	....	2.46	6.20	4.00	4.08	2.04	1.35	2.34	1.11	2.25	5.00
31	4.08	....	2.39	....	4.10	....	2.00	1.22	....	1.16	....	9.62
1911												
1	8.15	13.55	3.76	6.93	5.45	2.37	1.85	0.09	3.05	0.65	2.08	3.45
2	12.50	11.23	3.90	6.78	5.72	2.42	1.50	.06	4.60	.85	1.82	3.28
3	14.75	9.45	3.78	8.00	5.55	2.57	1.23	.04	4.35	5.60	1.68	2.95
4	18.10	7.92	3.68	12.18	5.29	2.38	1.10	.02	3.55	4.90	1.35	2.82
5	14.40	7.82	3.48	14.20	4.82	2.34	1.24	.00	2.20	3.50	1.18	2.62
6	10.68	7.70	9.33	17.63	4.43	2.46	1.97	.12	1.72	2.60	3.02	2.42
7	7.60	6.70	13.78	16.42	4.17	2.68	1.73	1.52	1.48	2.05	6.20	2.25
8	6.15	5.48	10.86	14.62	3.95	2.58	1.97	2.55	1.30	2.15	9.72	2.24
9	5.45	6.88	10.06	14.52	3.72	3.20	2.53	1.95	.92	2.20	8.52	2.20
10	5.42	8.48	11.40	14.27	3.55	3.16	3.32	1.50	.78	3.75	5.78	2.05
11	5.15	11.78	13.60	10.97	3.52	2.66	2.93	1.28	1.38	3.40	4.88	2.02
12	4.42	9.26	11.83	9.22	3.39	2.21	2.73	1.05	1.72	3.50	4.58	2.00
13	3.52	8.13	10.18	8.19	3.29	2.06	2.23	.85	1.78	3.10	4.58	1.90
14	3.62	6.73	8.58	7.95	3.15	2.16	1.95	2.38	1.60	2.80	4.54	1.98
15	6.55	5.98	8.50	8.37	4.09	1.61	1.70	2.05	1.25	2.40	4.48	1.95
16	5.60	5.33	7.68	12.59	4.85	1.51	1.65	1.60	1.05	2.35	4.38	2.20
17	5.38	4.78	6.90	12.45	4.07	1.26	1.65	1.38	1.05	3.95	4.80	2.70
18	5.25	4.38	6.33	9.87	3.39	1.24	1.37	1.18	3.15	11.00	4.20	3.80
19	4.92	4.20	6.56	8.47	2.99	1.28	1.20	.90	2.50	18.05	4.65	4.75
20	4.68	5.78	7.53	8.37	2.77	1.44	.95	.55	1.85	10.65	6.00	4.45
21	4.82	6.03	7.40	9.97	2.55	1.61	.70	.38	1.20	7.50	5.23	3.38
22	5.70	5.58	6.90	9.92	2.42	1.84	.63	.15	1.00	6.65	4.60	3.05
23	6.65	5.06	6.63	8.92	2.31	1.78	.53	.05	.90	4.75	3.90	3.62
24	8.70	4.56	6.00	8.02	2.21	1.74	.40	.12	1.00	4.65	3.50	10.20
25	7.60	4.18	5.38	7.35	2.29	1.66	.42	.25	1.55	4.45	3.75	9.90
26	6.65	4.10	4.88	6.45	2.21	1.58	.27	.38	1.55	3.85	3.65	9.40
27	6.55	3.98	4.50	5.99	2.11	1.78	.23	.38	1.15	3.30	3.85	9.85
28	7.05	3.90	6.50	5.52	2.03	2.11	.15	.22	1.05	3.38	3.55	9.50
29	8.55	....	7.42	5.35	1.81	2.04	.05	.30	.90	3.55	3.65	9.15
30	16.35	....	7.08	5.35	2.07	2.51	.10	1.60	.65	2.18	3.55	8.20
31	19.58	....	6.93	....	2.18	....	.03	1.85	....	2.28	....	7.30

Daily gage height, in feet, of New River at Fayette, W. Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	7.6	8.9	8.6	12.2	8.4	3.7	7.0	2.1	1.4	2.5	0.7	0.8
2	8.6	7.4	7.8	15.0	7.8	3.5	5.2	1.9	1.4	2.2	.5	.9
3	8.0	5.9	8.0	17.8	6.7	3.1	5.2	2.2	1.5	1.6	.5	1.0
4	6.6	3.6	9.0	14.9	6.0	2.9	4.8	2.0	1.5	1.5	.5	1.0
5	5.3	3.0	8.2	11.2	5.4	3.1	4.7	1.9	1.5	1.4	.6	1.7
6	4.1	2.6	4.7	9.3	5.2	3.1	6.3	1.9	1.4	1.3	.6	2.0
7	2.6	2.9	5.0	8.2	5.8	2.9	6.5	2.2	1.3	1.4	1.3	2.7
8	2.1	2.8	5.8	7.7	6.4	2.6	5.2	2.0	1.1	1.4	3.4	3.2
9	2.1	3.4	8.1	7.2	6.2	2.6	5.0	1.6	.9	1.3	8.0	3.6
10	2.1	3.4	10.6	6.7	5.7	2.6	4.4	1.4	.8	1.2	5.6	3.1
11	2.1	3.2	9.5	6.2	5.2	2.4	4.0	1.5	.5	1.1	4.5	2.9
12	2.2	3.1	9.2	5.8	10.2	2.0	4.0	1.5	.7	1.0	4.0	2.2
13	3.1	3.0	17.3	5.3	19.1	1.9	4.1	1.5	.6	.9	2.8	2.0
14	2.9	3.2	15.6	5.2	14.2	1.8	4.1	1.4	.4	.5	3.2	1.9
15	2.9	2.6	15.2	5.0	10.4	1.8	4.3	1.4	.3	.4	2.4	1.6
16	2.2	2.6	24.7	5.0	12.3	1.9	4.0	1.2	.3	.5	1.9	1.5
17	1.8	2.6	19.2	5.0	17.8	2.3	3.6	1.0	.5	.5	1.9	1.2
18	1.7	2.9	14.0	5.6	14.6	2.6	3.5	1.1	.8	.5	1.7	1.2
19	3.5	3.1	11.6	6.1	10.2	2.9	2.9	1.3	1.0	.6	1.4	1.4
20	9.7	3.8	9.8	6.3	8.7	2.9	2.5	1.5	1.5	.8	1.4	1.4
21	6.5	5.1	8.8	5.7	7.5	2.8	2.5	1.5	1.9	.8	1.4	1.3
22	5.8	11.3	8.4	5.1	6.6	2.3	3.0	2.2	1.8	1.1	1.4	1.2
23	5.7	15.2	9.6	5.0	5.8	2.1	3.2	2.2	2.2	1.4	1.2	1.3
24	5.6	10.5	9.8	5.2	5.2	2.4	2.8	2.0	3.8	1.6	1.2	1.2
25	5.5	8.6	13.0	5.4	4.8	3.8	3.8	1.6	8.0	1.5	.9	1.2
26	5.2	8.5	13.2	5.0	4.5	5.8	3.7	1.5	7.0	1.3	.9	1.3
27	5.2	10.6	11.0	5.7	4.3	5.6	5.6	1.4	5.5	1.0	1.0	1.3
28	5.3	14.4	9.2	9.6	4.0	8.3	4.6	1.4	4.9	.8	1.0	1.5
29	5.6	10.8	14.0	8.6	3.9	7.7	4.2	1.4	3.0	.8	.9	2.0
30	10.4	....	23.2	8.6	3.6	6.0	3.4	1.2	2.7	.8	.9	2.2
31	10.4	....	16.1	....	3.7	....	2.0	1.3	....	.8	....	....
1913												
1	3.0	8.9	8.4	8.9	4.5	9.6	2.3	1.0	1.2	3.8	2.0	6.7
2	9.4	9.4	8.7	6.3	3.8	7.6	2.7	.9	1.6	3.9	1.1	6.8
3	7.4	9.3	7.6	5.8	4.0	6.4	3.0	.8	1.5	4.0	1.2	7.0
4	6.9	9.0	5.9	5.0	3.9	6.2	3.1	.7	1.4	4.1	1.3	7.0
5	8.2	8.8	6.0	4.8	3.7	9.0	3.1	.6	1.1	4.2	1.4	6.5
6	7.9	8.3	5.9	4.9	3.5	6.8	3.1	.5	1.1	4.1	1.4	7.3
7	11.4	8.2	5.1	4.7	3.7	6.1	3.1	.5	1.1	4.2	1.5	7.4
8	17.9	7.9	4.7	4.6	3.6	6.5	3.0	.7	1.2	4.4	1.5	7.4
9	11.8	7.5	4.8	4.4	3.5	7.7	2.8	1.1	1.2	4.8	1.6	7.3
10	9.8	3.9	4.9	3.7	3.0	6.8	2.8	1.1	1.3	5.2	1.7	7.1
11	9.1	3.2	4.2	4.2	3.7	5.9	2.8	1.1	1.3	5.4	1.7	6.9
12	9.8	3.1	6.0	4.2	2.6	5.5	2.9	1.1	1.1	5.9	1.8	6.3
13	6.8	3.1	6.7	13.0	2.8	4.6	3.0	1.2	1.0	6.1	2.2	6.0
14	6.6	3.0	7.5	17.4	2.7	4.6	3.0	1.2	.6	5.2	4.5	5.5
15	6.1	3.0	15.0	14.2	2.6	4.5	3.0	1.2	1.1	4.8	7.3	5.8
16	5.3	2.7	17.2	13.6	2.7	3.3	3.0	1.1	1.1	4.3	7.4	7.7
17	4.6	2.8	10.7	11.6	2.7	4.2	2.8	1.1	1.0	3.6	7.4	8.3
18	4.1	2.7	8.6	9.7	3.4	3.5	2.6	1.1	1.1	2.5	7.3	8.0
19	4.3	2.4	7.4	8.1	4.1	3.1	2.3	1.1	1.5	2.1	7.1	7.8
20	4.1	2.2	7.0	6.8	3.9	2.9	2.2	1.1	1.6	1.8	6.9	7.0
21	3.7	2.5	7.3	6.5	4.2	2.9	2.2	1.2	1.5	1.4	6.3	5.1
22	3.3	2.8	7.5	5.7	4.8	2.9	2.2	1.1	3.4	1.2	6.0	3.1
23	2.8	2.9	7.4	5.3	5.1	2.6	2.2	1.1	7.0	1.1	5.5	3.1
24	5.0	3.1	5.1	5.0	11.8	2.5	2.2	1.1	6.3	1.1	5.3	3.1
25	4.8	2.9	4.7	4.7	16.3	3.0	1.9	1.1	4.7	1.0	5.1	3.0

Daily gage height, in feet, of New River at Fayette, W. Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
26	4.2	2.9	4.9	4.5	11.5	3.7	1.9	1.1	4.1	1.6	5.1	3.0
27	5.4	2.4	19.7	4.6	10.1	3.5	1.8	1.1	4.0	1.8	5.1	2.9
28	8.2	5.4	31.0	4.7	13.7	3.8	1.7	1.1	4.2	2.0	5.0	2.8
29	9.6	....	20.5	4.7	14.3	3.3	1.1	1.1	4.2	2.4	5.0	2.7
30	9.4	....	11.6	4.7	10.9	3.0	1.0	1.1	4.5	2.2	6.6	2.6
31	9.1	....	10.2	....	9.1	....	1.0	1.1	....	2.0	....	3.5
1914												
1	3.9	5.2	5.0	5.5	5.1	5.0	1.2	4.3	5.1	0.0	1.0	1.2
2	3.9	5.2	4.9	5.6	5.1	4.8	1.1	4.4	5.0	.0	1.3	4.4
3	4.0	5.5	4.8	5.6	5.0	4.7	1.0	4.4	5.0	.0	1.0	8.7
4	5.3	6.0	4.7	5.5	5.0	4.7	.9	4.5	4.9	— .3	.4	9.0
5	6.8	6.1	3.8	5.4	4.9	4.5	.8	4.6	4.8	— .3	.5	9.6
6	7.4	6.3	4.0	5.3	4.7	4.4	.8	4.9	4.8	— .3	.2	23.0
7	7.9	6.3	5.1	5.2	4.7	4.3	.9	5.0	4.8	.4	.3	12.2
8	8.0	5.4	5.2	5.0	4.6	4.2	.8	5.1	4.8	1.0	.4	9.5
9	8.1	4.1	5.8	4.8	4.4	4.2	1.1	5.2	4.7	.9	.2	8.3
10	8.2	4.1	6.0	4.8	4.3	4.1	1.2	5.2	4.6	.8	.2	7.6
11	8.3	4.0	7.0	4.8	4.1	4.1	1.2	5.4	4.5	.8	.1	6.0
12	8.5	4.0	7.1	4.7	4.1	4.1	1.4	5.5	4.5	.7	.2	5.2
13	8.4	4.1	7.2	4.7	4.3	4.0	1.9	5.6	4.4	.5	.4	5.0
14	8.4	4.2	7.1	4.6	4.5	3.8	2.1	5.6	4.4	.4	.2	5.0
15	8.3	4.8	7.0	4.6	4.4	3.7	2.3	5.7	4.3	.4	.5	4.0
16	8.1	5.8	6.9	4.5	4.2	3.6	2.6	5.7	4.2	.6	.5	3.6
17	7.9	7.1	6.8	4.5	4.2	3.5	2.7	5.7	4.1	1.1	.8	2.0
18	7.8	7.1	6.7	4.5	4.2	3.4	3.2	5.8	4.0	7.8	3.9	2.0
19	7.1	6.9	6.6	4.4	4.2	3.4	3.5	5.8	3.8	5.3	3.1	2.8
20	7.3	6.3	6.4	4.4	4.5	3.3	3.7	5.9	3.7	3.0	2.4	4.2
21	7.9	5.9	5.9	4.3	4.6	3.2	3.7	5.9	3.3	2.8	1.8	7.4
22	8.0	5.7	5.8	4.2	4.6	3.2	3.8	5.9	3.0	2.2	1.6	9.0
23	8.0	5.6	5.6	4.1	4.6	3.1	3.9	6.0	2.8	1.9	1.2	8.0
24	8.0	5.4	5.4	4.1	4.8	3.1	4.0	6.0	2.3	1.7	1.0	6.0
25	7.0	5.2	5.3	4.2	4.9	3.0	4.1	6.6	1.9	1.5	.9	6.1
26	5.2	5.2	4.9	4.2	5.0	3.0	4.1	6.5	1.7	1.3	1.2	7.0
27	5.1	5.1	4.8	4.4	5.1	2.8	4.1	5.9	1.5	1.4	1.2	6.2
28	5.1	5.1	4.9	4.6	5.1	2.7	4.2	5.8	1.2	1.4	1.2	6.6
29	4.9	....	5.1	4.8	5.2	2.6	4.2	5.7	.6	1.3	1.2	9.5
30	4.9	....	5.2	4.8	5.2	2.4	4.2	5.7	.2	1.0	1.2	11.5
31	5.0	....	5.2	....	5.2	....	4.3	....	....	1.0	....	11.2

NORTH FORK OF NEW RIVER NEAR CRUMPLER, N. C.

Location.—At J. J. Garvey's place about half a mile above the confluence of North and South forks of New River, and about 2½ miles north of Crumpler.

Drainage area.—279 square miles.

Records available.—August 13, 1908, to December 31, 1914.

Gage.—Staff attached to posts on right bank; read twice daily. Chain gage at same location used previous to July 23, 1911.

Discharge measurements.—Made from a boat or by wading.

Channel and control.—Banks high and not liable to overflow. Bed rocky; sandy near shores and clean. Control practically permanent.

Extremes of stage.—Maximum stage observed (mean of two readings): 8.2 feet, March 27, 1913. Minimum stage observed: 1.12 feet, August 19-20, 1914.

Winter flow.—Discharge relation little if at all affected by ice.

Accuracy.—Gage-height records reliable.

Data insufficient for computation of discharge.

Discharge measurements of North Fork of New River near Crumpler, N. C., in 1908–1914.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1908				1911			
Aug. 10...	O'Neill and Chapman	2.24	415	July 23...	Horton and Bailey..	1.42	159
1909				1913			
June 18...	H. J. Jackson.....	2.88	786	Dec. 17...	Walters and Peterson	1.65	212
1910				1914			
Nov. 1....	C. T. Bailey	1.64	216	Oct. 11...	Mathers and Morgan	1.18	96.9

Daily gage height, in feet, of North Fork of New River near Crumpler, N. C., for 1908–1914.

[J. J. Garvey, observer.]

Day	Aug.	Sept.	Oct.	Nov.	Dec.	Day	Aug.	Sept.	Oct.	Nov.	Dec.
1908						1908					
1	....	2.10	1.70	3.22	2.90	16	2.02	1.82	1.78	2.22	2.64
2	....	2.05	1.71	2.98	2.92	17	2.10	1.82	1.76	2.25	2.58
3	....	2.00	1.62	2.75	2.62	18	2.05	1.78	1.71	2.35	2.56
4	....	1.98	1.61	2.65	2.51	19	1.95	1.78	1.68	2.55	2.71
5	....	2.02	1.60	2.47	2.55	20	1.95	1.74	1.65	2.50	2.62
6	....	2.25	1.62	2.38	2.45	21	1.92	1.72	1.65	2.46	2.54
7	....	2.70	1.60	2.36	5.30	22	2.10	1.72	1.72	2.40	2.65
8	....	2.20	1.60	2.31	4.35	23	2.10	1.71	3.88	2.30	2.51
9	....	1.92	1.86	2.22	3.30	24	2.09	1.68	6.25	2.30	2.50
10	....	1.90	3.12	2.14	3.05	25	3.50	1.66	3.59	2.24	2.52
11	....	1.90	2.10	2.25	2.90	26	3.68	1.68	2.88	2.19	3.28
12	1.93	1.87	1.95	2.43	3.45	27	2.80	1.65	2.60	2.14	2.85
13	1.89	1.86	1.80	2.22	3.10	28	2.58	1.98	2.80	2.08	2.84
14	1.87	1.82	1.80	2.29	2.90	29	2.35	2.05	4.35	2.10	3.13
15	1.83	1.80	1.78	2.30	2.70	30	2.23	1.82	4.25	2.12	3.47
						31	2.15	....	3.75	....	4.18

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	3.66	2.25	2.80	2.92	3.94	2.56	2.57	2.26	1.63	1.52	1.70	1.53
2	3.21	2.56	2.70	2.76	3.40	2.48	2.68	2.64	1.59	1.50	1.69	1.53
3	3.02	2.55	2.77	2.75	2.96	3.37	2.35	2.40	1.55	1.50	1.66	1.54
4	2.90	2.52	2.86	2.68	2.77	5.86	2.54	2.19	1.63	1.50	1.62	1.56
5	4.84	2.49	2.64	2.55	2.62	4.30	2.18	2.23	1.96	1.55	1.62	1.53
6	4.27	2.62	2.90	2.46	2.54	3.56	2.16	2.10	1.71	1.62	1.62	1.52
7	3.63	2.41	3.40	2.46	2.43	3.16	3.28	2.04	1.64	1.62	1.62	1.72
8	3.23	2.32	3.31	2.50	2.39	2.89	3.04	1.92	1.69	1.54	1.63	2.27
9	3.02	2.40	3.14	2.59	2.32	3.18	2.89	1.87	1.68	1.50	1.64	1.67
10	2.86	4.78	3.42	2.44	3.52	2.88	2.64	1.90	2.10	1.50	1.88	1.84
11	2.74	3.61	3.20	2.38	2.86	2.66	2.52	2.00	1.86	3.58	1.75	2.04
12	2.68	3.15	3.06	2.33	2.60	2.86	2.40	1.92	1.71	2.70	1.66	1.84
13	2.60	2.94	2.96	3.20	2.44	2.90	2.40	1.82	1.65	2.06	1.63	2.57
14	2.50	2.76	3.00	3.47	2.40	2.68	2.46	1.86	1.56	1.94	1.61	2.58
15	2.52	2.70	3.88	3.04	2.34	2.65	2.31	2.85	1.56	2.70	1.61	2.08
16	3.04	3.54	3.76	2.78	2.32	2.52	2.22	2.56	1.68	2.36	1.60	1.87
17	3.56	3.03	2.72	2.69	2.23	2.90	2.19	2.46	2.26	2.10	1.57	1.70
18	3.27	2.88	2.59	2.58	2.16	2.88	2.08	2.17	1.92	2.00	1.60	1.96
19	3.08	3.00	2.55	2.48	2.20	2.62	2.00	2.07	1.67	1.92	1.57	1.64
20	2.96	3.06	2.53	2.44	2.82	2.54	1.96	1.94	1.66	1.88	1.54	1.66
21	2.80	2.83	2.68	2.40	5.63	2.44	1.94	1.88	1.68	1.82	1.53	1.46
22	2.68	3.39	2.72	2.39	4.30	2.37	1.92	1.82	1.97	1.79	1.52	2.00
23	2.60	3.32	2.52	2.41	3.51	2.48	2.05	1.79	1.96	1.78	1.64	1.76
24	2.56	3.43	2.48	2.46	3.07	2.48	2.08	1.76	2.04	2.18	1.86	2.10
25	2.50	3.62	3.26	2.32	2.96	2.44	1.88	1.72	1.86	1.89	1.66	2.06
26	2.60	3.35	3.14	2.29	2.88	2.30	1.84	1.70	1.73	1.82	1.58	2.11
27	2.58	3.10	2.96	2.26	2.98	2.34	2.10	1.67	1.67	1.78	1.54	2.22
28	2.44	2.99	4.56	2.30	2.85	2.69	2.39	1.66	1.62	1.74	1.53	2.42
29	2.44	....	4.06	2.22	2.79	2.52	2.00	1.64	1.60	1.71	1.53	2.46
30	2.40	....	3.50	2.61	2.56	2.69	1.92	1.66	1.58	1.70	1.53	2.57
31	1.88	....	3.10	....	2.83	....	1.88	1.62	....	1.70	....	2.56

Daily gage height, in feet, of North Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
1	2.53	1.93	3.19	1.66	1.95	1.77	1.91	1.79	2.97	1.73	1.66	2.15
2	2.93	2.00	2.98	1.66	1.90	1.76	1.85	1.95	2.38	1.63	1.70	2.36
3	2.98	2.23	2.78	1.68	1.84	1.72	1.99	1.79	2.81	1.57	1.70	2.32
4	2.48	2.60	2.61	1.70	1.92	1.69	2.09	2.33	2.59	1.57	1.66	2.27
5	2.15	2.12	2.48	1.64	1.88	2.09	2.16	2.22	2.69	1.60	1.60	2.16
6	2.10	2.19	2.49	1.59	1.78	2.48	2.93	1.97	2.28	1.63	1.60	4.10
7	3.82	1.96	2.38	1.58	1.82	1.99	2.74	1.89	2.09	1.99	1.59	2.78
8	2.72	2.30	2.23	1.54	2.70	1.90	3.85	1.97	2.02	2.24	1.56	2.32
9	2.57	2.11	2.13	1.56	2.70	1.87	3.05	1.97	2.03	2.33	1.56	2.22
10	2.26	2.18	2.16	1.51	2.47	2.55	2.65	1.81	2.11	1.91	1.53	2.08
11	2.17	1.96	2.28	1.48	2.30	2.86	2.50	1.76	1.95	1.77	1.53	2.14
12	2.20	1.56	2.16	1.57	2.22	3.63	2.73	1.65	2.14	1.71	1.52	1.82
13	2.04	3.06	2.05	2.18	2.36	3.98	2.53	1.85	1.82	1.63	1.60	1.68
14	2.00	3.32	1.98	1.87	2.12	3.72	2.37	1.82	1.78	1.63	1.53	1.74
15	1.96	2.79	1.93	1.70	2.06	3.03	2.17	1.68	1.77	1.59	1.80	1.82
16	1.69	2.57	1.87	1.94	2.00	3.47	2.07	1.71	1.72	1.58	1.62	1.78
17	2.00	3.22	1.92	1.88	1.98	3.10	2.61	1.63	1.65	1.57	1.52	1.65
18	1.99	4.36	1.86	2.16	2.11	2.78	2.29	1.57	1.59	1.56	1.53	1.91
19	2.54	3.10	1.82	1.94	2.04	2.54	2.12	1.73	1.61	1.59	1.52	1.93
20	2.13	2.80	1.92	1.92	1.96	2.42	2.01	1.84	1.63	2.05	1.52	1.88
21	2.98	2.67	1.87	1.96	2.00	3.29	1.95	2.03	1.70	1.81	1.50	1.31
22	2.75	2.72	1.82	1.96	2.32	3.05	1.93	1.87	1.63	1.68	1.49	1.65
23	2.48	2.56	1.79	1.92	2.19	2.77	1.89	1.79	1.55	1.70	1.48	2.08
24	2.42	2.39	1.78	2.22	2.09	2.98	1.85	1.69	1.59	1.57	1.51	2.67
25	2.20	2.36	1.76	2.13	2.57	2.58	1.81	1.61	1.61	1.57	1.80	2.16
26	2.09	2.31	1.70	2.34	2.34	2.29	1.77	1.59	1.77	1.53	1.78	2.14
27	2.16	2.28	1.69	3.31	2.19	2.16	1.81	1.68	1.69	1.49	1.60	2.08
28	2.13	2.40	1.70	2.22	2.04	2.09	2.26	1.59	1.82	1.81	1.77	2.04
29	2.10	....	1.70	2.12	1.96	2.07	2.09	1.52	1.70	1.73	2.18	2.26
30	1.95	....	1.69	2.02	1.88	2.04	1.87	1.64	1.67	1.69	1.88	2.56
31	2.24	....	1.68	....	1.83	....	1.84	3.09	....	1.68	....	2.46
1911												
1	2.60	3.23	1.94	2.61	2.88	2.00	1.60	1.46	2.12	1.38	1.60	1.69
2	4.16	2.73	1.98	2.52	2.63	1.87	1.57	1.46	1.68	1.44	1.56	1.83
3	4.75	2.50	1.95	2.47	2.49	1.74	1.55	1.68	1.56	1.58	1.52	1.77
4	4.61	2.60	1.93	2.69	2.44	1.71	1.82	2.16	1.48	1.90	1.50	1.70
5	3.17	2.45	1.87	5.32	2.39	2.73	2.71	1.71	1.46	1.64	1.55	1.62
6	2.83	2.33	3.01	5.05	2.32	2.67	1.77	1.78	1.46	1.43	1.80	1.63
7	2.60	2.33	3.37	3.93	2.22	2.04	1.63	1.71	1.63	1.41	2.60	1.62
8	2.43	2.73	4.93	3.79	2.16	2.03	1.75	1.70	1.47	1.44	1.98	1.62
9	2.29	3.75	4.55	3.72	2.17	1.97	1.77	1.50	1.41	1.50	2.21	1.60
10	1.96	4.03	3.95	3.49	2.15	1.83	1.91	1.39	1.40	1.49	2.14	1.61
11	2.07	3.31	3.47	3.18	2.09	1.83	2.09	1.36	1.76	1.96	2.02	1.64
12	2.09	3.01	3.11	3.17	2.06	1.79	1.91	1.32	1.96	1.68	2.00	1.66
13	2.09	2.76	2.85	3.25	2.58	1.77	1.86	1.73	1.62	1.55	2.24	1.61
14	2.06	2.55	2.87	3.33	3.28	1.75	1.97	1.48	1.52	1.50	1.99	1.60
15	2.03	2.46	2.61	3.61	2.57	1.69	1.67	1.40	1.46	1.76	1.97	1.74
16	1.97	4.33	2.46	3.56	2.35	1.64	1.61	1.49	1.49	1.64	1.88	2.16
17	1.89	2.25	2.39	3.23	2.23	1.65	1.57	1.43	1.48	3.41	1.82	2.12
18	1.95	2.21	2.37	2.95	2.17	1.67	1.56	1.38	1.54	3.71	1.91	1.84
19	1.93	2.19	2.40	3.89	2.18	1.69	1.51	1.43	1.45	2.55	2.06	1.76
20	1.91	2.29	2.59	3.43	2.09	2.02	1.51	1.40	1.43	2.14	1.96	1.71
21	2.05	2.20	2.28	3.03	2.07	1.77	1.55	1.35	2.02	1.98	1.95	2.00
22	2.19	2.03	2.21	2.95	1.99	1.67	1.55	1.30	2.00	2.02	1.87	2.43
23	3.01	2.18	2.34	2.73	1.99	1.61	1.46	1.27	1.68	2.20	1.84	3.29
24	2.65	2.09	2.21	2.59	2.11	1.75	1.40	1.28	1.52	1.86	1.94	2.78
25	2.46	2.01	2.19	2.49	1.95	1.68	1.52	1.28	1.50	1.78	1.92	2.88

Daily gage height, in feet, of North Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
26	2.45	1.99	2.21	2.45	1.91	1.64	1.46	1.34	1.50	1.73	1.86	2.73
27	2.46	2.01	3.17	2.37	1.85	2.29	1.38	1.56	1.48	1.70	1.88	3.00
28	2.59	1.96	2.71	2.31	1.83	2.31	1.36	1.47	1.44	1.68	1.92	2.70
29	2.65	....	2.65	2.35	1.79	1.94	1.35	1.66	1.46	1.66	1.92	2.51
30	4.05	....	2.78	2.43	1.74	1.69	1.33	1.95	1.45	1.63	1.75	2.39
31	3.70	....	2.66	....	1.87	....	1.36	3.09	....	1.60	....	2.64
1912												
1	2.55	2.9	2.5	3.0	2.65	1.92	1.86	2.1	1.64	1.66	1.47	1.66
2	2.4	2.6	2.35	4.3	2.5	2.5	2.05	1.78	1.56	1.62	1.53	1.58
3	2.35	2.45	2.4	4.1	2.45	2.5	2.45	1.70	1.56	1.59	1.47	1.72
4	2.25	2.1	2.3	3.4	2.35	2.0	2.55	2.1	1.54	1.60	1.42	1.61
5	2.05	1.97	2.45	3.1	2.4	1.97	3.2	1.94	1.56	1.56	1.46	1.78
6	1.84	2.1	2.4	2.85	2.4	1.90	3.5	1.76	1.52	1.55	1.44	1.82
7	2.75	2.05	2.55	2.75	2.55	2.05	2.7	1.71	1.52	1.52	2.15	1.75
8	2.65	2.15	2.9	2.7	2.45	1.90	2.35	1.68	2.35	1.50	2.30	1.64
9	2.65	2.0	2.4	2.5	2.4	1.78	2.25	1.76	1.67	1.48	1.83	1.60
10	2.6	2.0	3.2	2.4	2.25	1.72	2.15	2.05	1.52	1.47	1.70	1.53
11	2.65	1.86	2.85	2.35	2.2	1.70	2.1	1.82	1.46	1.46	1.65	1.56
12	2.6	1.92	2.8	2.3	2.5	1.68	2.25	1.74	1.44	1.46	1.60	1.52
13	2.6	1.90	3.3	2.25	2.3	1.66	1.99	1.70	1.54	1.46	1.60	1.33
14	2.3	1.88	3.2	2.2	2.15	1.77	1.98	1.69	1.54	1.66	1.78	1.62
15	2.35	1.86	5.1	2.2	2.3	2.0	2.05	1.65	1.54	1.87	1.67	1.54
16	2.4	1.86	5.0	2.2	3.2	2.2	1.84	1.62	1.51	1.58	1.58	1.63
17	2.25	1.94	3.8	2.25	2.85	1.80	1.86	1.60	1.47	1.52	1.54	1.43
18	2.5	2.05	3.3	2.2	2.6	1.78	1.84	1.66	1.59	1.48	1.52	1.58
19	2.95	2.3	3.0	2.1	2.45	1.82	2.15	1.69	2.3	1.58	1.50	1.56
20	3.4	2.4	2.85	2.05	2.3	1.75	2.1	3.3	1.90	1.74	1.50	1.42
21	2.8	3.1	2.75	2.15	2.2	1.67	2.15	2.65	1.52	1.57	1.49	1.46
22	2.45	3.6	2.65	2.35	2.15	1.62	1.90	2.3	1.48	1.56	1.49	1.47
23	2.4	2.8	2.55	2.55	2.1	1.74	1.88	2.1	3.6	1.61	1.49	1.50
24	2.3	2.75	3.2	2.25	2.0	2.0	1.78	1.89	3.2	1.65	1.48	1.50
25	2.3	2.85	3.2	2.2	2.0	2.85	2.25	1.82	2.15	1.54	1.48	1.64
26	2.2	2.95	3.1	2.1	2.0	2.0	2.0	1.78	1.96	1.51	1.46	1.78
27	2.3	3.7	2.95	2.45	1.9	1.85	1.82	1.77	2.05	1.48	1.48	1.98
28	2.05	3.2	2.8	2.6	1.88	1.88	1.76	1.68	1.89	1.48	1.62	2.0
29	2.7	2.75	4.6	2.55	2.35	1.91	1.70	1.62	1.76	1.48	1.96	1.98
30	3.7	....	3.8	2.95	2.2	2.05	2.2	1.63	1.73	1.46	1.70	2.15
31	3.2	....	3.3	....	1.98	....	1.84	1.87	....	1.44	....	2.85
1913												
1	2.25	2.45	2.9	2.7	2.0	2.5	1.78	1.41	1.57	1.74	1.69	2.0
2	1.88	2.1	2.55	2.55	1.97	2.4	1.84	2.05	1.56	1.64	1.64	2.3
3	2.0	2.25	2.3	2.45	1.89	2.3	2.95	1.58	1.55	1.62	1.63	1.93
4	2.05	2.5	2.2	2.35	1.92	2.3	2.6	1.44	1.84	1.59	1.62	1.83
5	2.25	2.5	2.2	2.3	1.88	2.2	2.25	1.39	2.85	1.56	1.60	1.80
6	2.45	2.3	2.05	2.2	1.87	2.1	1.88	2.25	2.0	1.54	1.60	1.74
7	2.45	2.0	1.86	2.15	1.92	2.05	1.74	1.54	1.78	1.52	1.58	1.87
8	2.3	2.05	2.05	2.15	2.05	2.35	1.66	2.05	1.66	1.52	1.62	2.0
9	2.3	2.1	1.91	2.3	1.95	2.2	1.64	1.66	1.66	1.61	2.25	1.72
10	2.1	2.15	2.1	2.15	1.87	2.1	1.61	1.68	1.63	1.68	1.88	1.74
11	2.05	2.05	2.35	2.5	1.81	1.97	1.63	1.54	1.55	1.60	1.78	2.05
12	2.1	2.2	2.2	3.2	1.79	2.1	1.80	1.45	1.51	1.56	1.74	1.78
13	2.4	1.80	2.2	5.0	1.75	2.1	1.70	1.95	1.49	1.56	1.86	1.86
14	2.2	1.86	5.7	3.5	1.78	1.91	1.62	2.05	1.47	1.50	1.85	1.85
15	2.1	1.82	5.6	3.4	1.78	1.83	1.60	1.83	1.50	1.48	1.83	1.75
16	2.0	1.79	4.6	3.2	2.2	1.81	1.56	1.57	1.75	1.48	1.80	1.69
17	1.95	1.82	3.5	3.0	2.1	1.78	1.52	1.48	1.94	1.48	2.4	1.68
18	1.95	1.78	3.0	2.8	2.1	1.74	1.50	1.50	1.81	1.50	2.15	1.68
19	2.0	1.74	2.75	2.6	1.86	2.35	1.46	1.89	2.25	1.56	2.0	1.66
20	1.86	1.91	2.6	2.55	1.90	1.87	1.60	3.1	1.86	2.05	1.92	1.62

Daily gage height, in feet, of North Fork of New River near Crumpler, N. C., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
21	1.82	2.4	2.7	2.4	2.65	1.78	1.52	1.93	3.45	1.86	1.84	1.60
22	1.96	2.2	2.75	2.3	2.5	1.72	1.46	1.78	2.65	1.70	1.80	1.60
23	1.86	2.1	2.4	2.25	4.0	1.84	1.42	2.5	2.2	1.74	1.76	1.62
24	1.92	1.99	2.35	2.2	4.9	1.92	1.40	2.05	1.97	2.2	1.73	1.68
25	2.35	1.94	2.6	2.15	3.4	1.72	1.40	1.80	1.86	2.75	1.66	1.72
26	2.35	1.90	2.55	2.1	2.85	2.7	1.48	1.66	1.78	2.15	1.64	2.4
27	2.9	2.5	8.2	2.3	4.0	1.84	1.48	1.58	1.72	1.98	1.64	1.80
28	3.5	3.4	5.5	2.1	4.2	1.76	1.75	1.55	1.68	1.89	1.63	1.98
29	2.9	....	3.75	2.1	3.45	1.68	1.97	1.47	1.69	1.82	1.63	1.86
30	2.55	....	3.3	2.15	3.0	1.76	1.64	2.55	2.0	1.76	1.64	1.98
31	2.4	....	3.0	....	2.7	....	1.48	1.72	....	1.70	....	1.95
1914												
1	1.94	3.0	2.4	3.8	2.1	1.64	1.18	1.22	1.38	1.18	1.41	4.3
2	1.89	2.6	2.4	3.7	2.05	1.60	1.20	1.20	1.34	1.18	1.40	4.8
3	2.0	2.4	2.4	3.3	2.05	1.59	1.92	1.17	1.30	1.18	1.40	3.9
4	1.90	2.3	2.45	3.0	2.05	1.56	1.52	1.48	1.29	1.32	1.40	4.9
5	1.92	2.75	2.3	2.75	2.3	1.60	1.58	1.34	1.26	1.50	1.38	5.9
6	1.89	3.1	2.25	2.6	3.1	1.95	1.46	1.26	1.22	1.34	1.36	4.2
7	1.83	3.6	2.25	2.5	2.7	1.88	1.38	1.20	1.20	1.28	1.34	3.4
8	1.83	3.1	2.2	2.5	2.5	1.81	1.58	1.18	1.20	1.25	1.34	3.1
9	2.3	2.7	2.15	2.4	2.5	1.67	1.33	1.20	1.40	1.28	1.50	2.75
10	3.2	2.55	2.15	2.2	2.4	1.82	1.85	1.31	1.32	1.21	1.52	2.6
11	2.6	2.45	2.5	2.2	2.25	1.64	1.50	1.36	1.30	1.20	1.41	2.45
12	2.2	2.3	4.2	2.15	2.2	1.52	1.46	1.30	1.78	1.18	1.37	2.35
13	1.92	2.3	3.3	2.1	2.1	1.60	1.30	1.24	1.46	1.20	1.36	2.55
14	2.0	2.1	2.9	2.25	2.15	1.56	2.15	1.40	1.32	1.40	1.38	2.35
15	2.3	2.2	2.75	3.9	2.05	1.61	2.35	1.40	1.26	2.15	2.75	2.0
16	2.05	2.2	2.75	3.5	2.0	1.51	2.0	1.34	1.18	3.9	2.5	1.82
17	2.15	1.81	2.9	3.4	1.98	1.44	1.71	1.22	1.26	2.2	2.15	2.05
18	1.84	2.6	3.2	3.1	1.97	1.42	2.0	1.18	1.74	2.05	1.88	2.1
19	1.98	3.0	3.8	2.8	1.92	1.57	1.64	1.13	1.52	1.94	1.86	2.25
20	1.93	4.4	2.8	3.2	1.88	1.52	1.48	1.12	1.55	1.80	1.80	3.0
21	2.25	3.8	2.55	2.9	1.85	1.50	1.40	1.24	1.42	1.68	1.46	2.95
22	2.05	3.1	2.55	2.7	1.82	1.48	1.37	1.33	1.32	1.62	1.94	3.1
23	1.96	2.9	2.4	2.6	1.80	1.41	1.34	1.26	1.26	1.56	1.74	2.65
24	2.1	3.1	2.4	2.5	1.79	1.40	1.29	1.15	1.22	1.72	1.54	2.5
25	2.85	2.8	2.35	2.45	1.77	1.38	1.24	1.14	1.28	1.72	1.60	4.6
26	2.4	2.7	2.4	2.5	1.72	1.42	1.22	1.48	1.32	1.59	1.70	4.2
27	2.25	2.55	2.5	2.4	1.70	1.36	1.42	2.05	1.24	1.53	1.63	3.2
28	2.15	2.45	2.6	2.25	1.69	1.32	1.58	3.5	1.20	1.50	1.60	2.9
29	2.1	....	2.7	2.2	1.68	1.23	1.48	2.05	1.18	1.48	1.58	2.9
30	2.05	....	3.9	2.2	1.82	1.18	1.38	1.66	1.18	1.46	3.6	3.4
31	3.3	....	4.0	....	1.67	....	1.27	1.48	....	1.42	....	3.0

NOTE.—Ice present in stream as follows:
1909: Dec. 10-31, ice 0.75 foot thick Dec. 31.
1910: Jan. 1-11, and during December.
1911: Slush ice reported Feb. 23.
1912: Jan. 6-29, ice from 3 to 12 inches thick; Feb. 3-17, ice about 4 inches thick.
1913: Feb. 8-17; slush ice Feb. 9.
1914: Jan. 12-16 and Feb. 15-17.

REED CREEK AT GRAHAMS FORGE, VA.

Location.—At highway bridge at Grahams Forge.

Drainage area.—247 square miles.

Records available.—July 29, 1908, to December 31, 1914.

Gage.—Chain attached to bridge; read twice daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Left bank will overflow at high stages; right bank high and rocky. Bed of stream rocky, clean, and permanent.

Extremes of stage.—Maximum mean daily gage height: 7.9 feet, March 27, 1913. Minimum stage observed: 1.17 feet at 7.30 A. M., December 22, 1909.

Winter flow.—Discharge relation probably affected by ice for short periods.

Regulation.—There is a dam and grist mill about 400 feet above the station. The storage is small and it is stated that water flows over the dam at all times.

Accuracy.—Gage-height record reliable.

Data insufficient for computation of discharge.

Discharge measurements of Reed Creek at Grahams Forge, Va., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
July 30	O'Neill and Chapman	2.46	243
Aug. 15	W. M. O'Neill	2.29	158
1909			
June 16	H. J. Jackson	2.80	383
Dec. 9	A. H. Horton	2.34	152
1910			
Mar. 18	C. T. Bailey	2.41	192
Oct. 21	do	2.09	95.1
1911			
July 20	Horton and Bailey	2.16	106
1912			
Sept. 24	C. T. Bailey	3.80	1,330
1913			
Dec. 13	Peterson and Walters	2.13	99
1914			
Oct. 8	Mathers and Morgan	2.10	67.0
Oct. 8	do	2.08	59.7

Daily gage height, in feet, of Reed Creek at Grahams Forge, Va., for 1908–1914.

[Robert Runion, Munsey Runion, and J. T. Black, observers.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908							1908						
1		2.38	2.33	2.24	2.97	2.58	16		2.25	2.24	2.28	2.49	2.77
2		2.31	2.32	2.20	2.90	2.88	17		2.37	2.24	2.27	2.51	2.69
3		2.27	2.26	2.18	2.76	2.78	18		2.32	2.22	2.22	2.67	2.67
4		2.26	2.22	2.19	2.70	2.70	19		2.27	2.22	2.26	3.19	2.67
5		2.24	2.32	2.14	2.62	2.64	20		2.25	2.24	2.20	3.08	2.65
6		2.24	2.38	2.18	2.56	2.60	21		2.24	2.20	2.28	2.82	2.60
7		2.23	2.40	2.17	2.53	3.18	22		2.26	2.19	2.28	2.74	2.65
8		2.24	3.18	2.18	2.50	3.58	23		2.22	2.20	2.21	2.64	2.65
9		2.48	2.48	2.22	2.48	3.14	24		2.26	2.20	3.17	2.61	2.65
10		2.50	2.42	2.46	2.48	2.88	25		2.42	2.15	2.72	2.58	2.72
11		2.47	2.36	2.82	2.52	2.78	26		2.68	2.20	2.52	2.54	3.91
12		2.38	2.30	2.50	2.51	2.96	27		2.54	2.20	2.48	2.48	3.27
13		2.30	2.29	2.41	2.48	3.24	28		2.48	2.20	2.58	2.48	3.17
14		2.24	2.28	2.33	2.50	3.02	29		2.41	2.31	3.92	2.48	3.39
15		2.25	2.23	2.32	2.51	2.86	30	2.48	2.39	2.25	4.58	2.48	3.72
							31	2.42	2.32	......	3.48	.....	4.09

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	3.62	2.59	2.80	2.90	4.46	2.45	2.66	2.28	2.19	2.17	2.18	2.10
2	3.27	2.61	2.76	2.82	3.57	2.52	2.68	2.68	2.13	2.20	2.19	2.06
3	3.31	2.66	2.76	2.76	3.19	2.61	2.62	2.54	2.16	2.11	2.19	2.08
4	3.47	2.57	2.86	2.71	2.95	3.28	2.72	2.42	2.15	2.14	2.20	2.11
5	4.59	2.56	2.78	2.68	2.83	3.16	2.68	2.41	2.18	2.19	2.20	2.15
6	4.09	3.55	2.78	2.65	2.77	2.85	2.49	2.38	2.16	2.17	2.20	2.09
7	3.43	2.57	3.26	2.60	2.63	2.74	2.70	2.28	2.18	2.14	2.21	2.20
8	3.22	2.57	3.40	2.59	2.55	2.63	2.96	2.28	2.19	2.14	2.12	2.40
9	3.09	2.61	3.28	2.58	2.57	3.10	2.76	2.26	2.31	2.18	2.20	2.35
10	2.99	3.28	3.27	2.54	3.33	2.89	2.62	2.21	2.38	2.15	2.21	2.00
11	2.93	3.35	3.22	2.50	3.27	2.74	2.53	2.22	2.25	2.82	2.23	2.20
12	2.87	3.08	3.04	2.52	3.00	2.67	2.48	2.24	2.20	3.10	2.14	2.26
13	2.81	2.85	2.98	2.76	2.85	3.74	2.45	2.23	2.16	2.56	2.20	2.40
14	2.76	2.79	3.01	3.38	2.73	3.17	2.50	2.28	2.19	2.48	2.24	2.58
15	2.77	2.72	2.90	2.94	2.65	2.91	2.39	2.34	2.20	2.54	2.11	2.42
16	3.17	2.84	2.84	2.85	2.59	2.82	2.36	2.59	3.02	2.59	2.12	2.35
17	3.92	2.90	2.77	2.79	2.56	3.02	2.32	2.64	2.61	2.46	2.20	2.34
18	3.67	2.78	2.72	2.66	2.54	2.86	2.32	2.52	2.66	2.40	2.18	2.28
19	3.40	2.78	2.66	2.65	2.51	2.72	2.32	2.37	2.49	2.44	2.17	2.26
20	3.29	2.86	2.66	2.64	2.57	2.63	2.30	2.30	2.36	2.36	2.16	2.19
21	3.15	2.84	2.76	2.67	3.53	2.60	2.28	2.26	2.36	2.31	2.19	2.15
22	3.05	2.94	3.21	2.67	3.70	2.67	2.26	2.25	2.30	2.32	1.90	1.71
23	2.97	3.34	3.00	2.69	3.13	2.58	2.26	2.16	2.26	2.36	2.11	1.70
24	2.91	3.16	2.88	2.67	2.91	2.53	2.25	2.15	2.55	2.34	2.15	2.16
25	2.87	3.16	3.36	2.64	2.84	2.55	2.21	2.20	2.40	2.32	2.15	2.14
26	2.85	3.10	3.37	2.62	2.85	2.55	2.24	2.20	2.32	2.28	2.00	2.17
27	2.82	2.98	3.10	2.57	2.85	2.60	2.25	2.18	2.26	2.26	2.12	2.16
28	2.77	2.88	3.91	2.54	2.74	2.58	2.29	2.16	2.20	2.25	2.11	2.17
29	2.75	....	3.68	2.52	2.65	2.72	2.34	2.19	2.20	2.20	2.06	2.18
30	2.70	....	3.16	3.51	2.59	2.66	2.25	2.16	2.16	2.20	2.06	2.14
31	2.57	....	3.04	....	2.52	....	2.28	2.18	....	2.25	....	2.15
1910												
1	2.16	2.42	2.62	2.24	2.54	2.23	2.30	2.22	2.08	2.08	2.04	2.08
2	2.15	2.40	2.88	2.24	2.48	2.22	2.34	2.25	2.17	2.07	2.00	2.05
3	2.50	2.42	2.84	2.24	2.42	2.20	2.36	2.26	2.20	2.06	2.02	2.06
4	2.52	2.48	2.78	2.38	2.41	2.21	2.36	2.42	2.14	2.08	2.02	2.07
5	2.40	2.46	2.73	2.34	2.36	2.28	2.38	2.39	2.10	2.06	2.03	2.06

Daily gage height, in feet, of Reed Creek at Grahams Forge, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	2.40	2.58	2.75	2.32	2.34	2.68	2.49	2.31	2.14	2.06	2.04	2.52
7	3.20	2.52	2.91	2.31	2.33	2.56	2.56	2.26	2.14	2.08	2.02	2.48
8	3.00	2.46	2.76	2.20	2.40	2.42	2.51	2.23	2.15	2.19	2.00	2.25
9	2.62	2.44	2.66	2.22	2.44	2.36	2.47	2.28	2.16	2.21	2.00	2.19
10	2.50	2.40	2.60	2.16	2.40	2.40	2.46	2.26	2.22	2.09	2.04	2.10
11	2.53	2.36	2.60	2.31	2.38	3.44	2.38	2.27	2.24	2.09	2.04	2.16
12	2.46	2.31	2.55	2.31	2.34	3.44	2.36	2.21	2.13	2.07	2.04	2.12
13	2.40	2.32	2.46	3.22	2.32	4.80	2.38	2.20	2.14	2.08	2.02	2.08
14	2.36	2.38	2.41	2.90	2.31	4.40	2.35	2.20	2.16	2.08	2.04	2.14
15	2.34	2.48	2.41	2.64	2.32	3.74	2.33	2.14	2.14	2.05	2.06	2.10
16	2.31	2.64	2.35	2.58	2.35	3.32	2.30	2.17	2.10	2.01	2.04	2.12
17	2.28	3.11	2.39	2.65	2.35	3.40	2.42	2.04	2.10	2.02	2.04	2.10
18	2.30	4.25	2.34	2.80	2.35	3.16	2.64	2.08	2.10	2.01	2.06	2.08
19	2.32	3.14	2.33	2.76	2.46	2.84	2.55	2.18	2.04	2.05	2.04	2.05
20	2.45	2.91	2.30	2.64	2.49	2.95	2.47	2.14	2.10	2.11	2.03	2.00
21	2.58	2.86	2.51	2.64	2.51	2.78	2.34	2.09	2.08	2.48	2.00	2.00
22	2.55	2.80	2.48	2.69	2.49	2.69	2.34	2.16	2.10	2.10	2.02	2.06
23	2.88	2.72	2.32	2.67	2.54	2.63	2.26	2.02	2.11	2.10	2.02	2.14
24	2.74	2.60	2.29	2.66	2.47	2.60	2.29	2.09	2.11	2.05	2.03	2.11
25	2.59	2.56	2.31	2.75	2.64	2.58	2.28	2.10	2.07	2.07	2.03	2.17
26	2.51	2.50	2.28	2.84	2.74	2.54	2.31	2.02	2.05	2.04	2.05	2.20
27	2.47	2.50	2.28	2.86	2.54	2.46	2.28	2.10	2.12	2.06	2.04	2.17
28	2.48	2.50	2.28	2.74	2.48	2.41	2.28	2.15	2.32	2.07	2.04	2.21
29	2.47	....	2.30	2.64	2.38	2.40	2.26	2.08	2.06	2.06	2.10	2.19
30	2.44	....	2.26	2.54	2.28	2.34	2.20	2.10	2.06	2.02	2.13	2.28
31	2.48	....	2.26	....	2.25	....	2.26	2.09	....	2.02	....	2.38
1911												
1	2.42	3.20	2.43	2.72	2.65	2.32	2.12	2.04	2.65	2.00	2.30	2.19
2	3.38	3.97	2.42	2.72	2.60	2.26	2.13	2.04	2.31	2.23	2.23	2.16
3	3.71	2.84	2.40	2.74	2.55	2.24	2.08	2.00	2.26	2.96	2.25	2.20
4	3.42	2.74	2.40	3.60	2.52	2.21	2.09	2.08	2.16	2.43	2.18	2.22
5	2.83	2.72	2.38	4.14	2.51	2.20	2.08	2.36	2.12	2.28	2.13	2.18
6	2.62	2.64	2.39	4.08	2.48	2.24	2.15	2.20	2.18	2.16	2.35	2.10
7	2.52	2.58	3.26	3.64	2.46	2.20	2.12	2.16	2.16	2.14	2.64	2.25
8	2.48	2.60	3.20	3.46	2.44	2.28	2.14	2.20	2.14	2.14	2.50	2.14
9	2.41	3.88	3.31	3.57	2.44	2.20	2.18	2.20	2.16	2.12	2.57	2.12
10	2.30	4.20	3.82	3.50	2.42	2.21	2.18	2.16	2.12	2.19	2.71	2.10
11	2.30	3.40	3.55	3.30	2.44	2.18	2.16	2.08	2.18	2.26	2.60	2.24
12	2.30	3.32	3.18	3.08	2.39	2.16	2.42	2.02	2.16	2.28	2.56	2.11
13	2.30	2.94	3.02	3.02	2.38	2.18	2.24	2.52	2.16	2.24	2.52	2.20
14	2.30	2.84	2.86	3.04	2.59	2.18	2.22	2.32	2.13	2.22	2.50	2.17
15	2.28	2.76	2.84	3.37	2.50	2.15	2.17	2.22	2.06	2.14	2.45	2.28
16	2.28	2.69	2.80	3.55	2.46	2.16	2.14	2.16	2.00	2.14	2.40	2.22
17	2.26	2.61	2.72	3.24	2.43	2.16	2.14	2.18	2.14	2.32	2.38	2.32
18	2.26	2.57	2.68	3.07	2.42	2.18	2.10	2.20	2.03	4.66	2.39	2.32
19	2.26	2.59	2.68	2.98	2.38	2.19	2.10	2.12	1.99	3.10	2.40	2.30
20	2.12	2.66	2.72	3.14	2.34	2.32	2.11	2.10	2.14	2.76	2.40	2.31
21	2.26	2.70	2.70	3.20	2.32	2.28	1.88	2.06	2.04	2.60	2.37	2.33
22	2.62	2.65	2.66	3.06	2.31	2.18	2.04	2.05	2.26	2.52	2.36	2.38
23	3.54	2.66	2.64	2.94	2.28	2.20	2.04	2.00	2.28	2.50	2.34	3.56
24	3.24	2.58	2.58	2.83	2.28	2.16	2.02	2.05	2.16	2.46	2.34	3.05
25	2.80	2.54	2.55	2.76	2.26	2.14	2.02	2.14	2.12	2.43	2.33	3.10
26	2.68	2.50	2.50	2.72	2.26	2.16	2.03	2.20	2.12	2.38	2.29	2.99
27	2.60	2.48	2.76	2.66	2.26	2.16	2.02	2.42	2.04	2.36	2.29	3.00
28	2.59	2.46	2.86	2.62	2.24	2.18	2.03	2.24	2.03	2.30	2.26	2.92
29	2.67	....	2.77	2.60	2.20	2.16	2.02	2.18	2.04	2.32	2.31	2.72
30	4.52	....	2.77	2.61	2.23	2.16	2.05	2.30	1.99	2.29	2.22	2.68
31	3.62	....	2.74	....	2.22	....	2.00	2.60	....	2.30	....	2.70

Daily gage height, in feet, of Reed Creek at Grahams Forge, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	2.71	2.92	2.90	3.3	2.94	2.44	2.72	2.80	2.18	2.31	2.16	2.12
2	2.67	2.78	2.80	4.1	2.81	2.42	2.89	2.59	2.15	2.27	2.15	2.14
3	2.61	2.55	2.79	4.5	2.74	2.46	2.69	2.46	2.15	2.28	2.14	2.17
4	2.60	2.52	2.72	3.65	2.68	2.43	2.59	2.48	2.13	2.26	2.14	2.20
5	2.32	2.68	2.70	3.3	2.60	2.44	2.92	2.44	2.16	2.21	2.08	2.36
6	2.50	2.70	2.74	3.2	2.67	2.38	2.96	2.38	2.16	2.22	2.15	2.40
7	2.50	2.60	2.80	3.1	2.78	2.40	2.72	2.32	2.14	2.21	2.27	2.38
8	2.50	2.50	3.20	3.05	2.83	2.36	2.66	2.30	2.22	2.20	2.69	2.37
9	2.44	2.42	3.9	2.92	2.80	2.29	2.56	2.30	2.19	2.19	2.45	2.31
10	2.62	2.42	3.6	2.86	2.70	2.30	2.50	2.37	2.12	2.17	2.34	2.26
11	2.44	2.44	3.25	2.82	2.72	2.28	2.56	2.34	2.14	2.18	2.29	2.24
12	2.40	2.40	3.15	2.84	2.91	2.27	2.61	2.28	2.13	2.16	2.28	2.22
13	2.44	2.38	4.3	2.74	3.45	2.25	2.60	2.26	2.14	2.17	2.24	2.14
14	2.52	2.37	4.2	2.72	3.05	2.28	2.46	2.23	2.14	2.26	2.22	2.22
15	2.32	2.42	5.2	2.68	2.94	2.25	2.40	2.23	2.14	2.32	2.22	2.16
16	2.42	2.40	4.8	2.78	4.2	2.30	2.34	2.22	2.12	2.28	2.20	2.18
17	2.20	2.36	3.8	2.73	3.9	2.32	2.30	2.20	2.14	2.20	2.17	2.18
18	2.34	2.40	3.45	2.79	3.3	2.28	2.28	2.27	2.36	2.17	2.18	2.20
19	2.48	2.52	3.25	2.74	3.05	2.26	2.44	2.27	2.86	2.20	2.18	2.19
20	3.05	2.63	3.15	2.70	2.90	2.25	2.30	2.27	2.37	2.24	2.18	2.14
21	2.92	3.3	3.0	2.66	2.79	2.21	2.26	2.30	2.26	2.22	2.16	2.08
22	2.74	3.9	2.97	2.71	2.72	2.24	2.32	2.26	2.20	2.20	2.16	2.09
23	2.64	3.15	2.88	2.91	2.66	2.23	2.30	2.32	3.15	2.20	2.14	2.12
24	2.62	2.98	3.05	2.83	2.62	2.38	2.26	2.36	3.7	2.18	2.17	2.14
25	2.52	3.25	3.55	2.74	2.60	3.4	2.32	2.28	2.90	2.16	2.15	2.16
26	2.50	3.4	3.3	2.67	2.55	2.76	2.44	2.27	2.64	2.20	2.12	2.12
27	2.60	3.9	3.1	2.87	2.53	2.70	2.31	2.28	2.52	2.16	2.08	2.21
28	2.61	3.35	2.99	3.4	2.56	3.2	2.24	2.24	2.47	2.14	2.15	2.18
29	2.65	3.1	5.7	3.05	2.51	2.71	2.28	2.20	2.38	2.16	2.09	2.20
30	2.70	....	4.1	3.1	2.52	2.79	2.64	2.21	2.35	2.15	2.14	2.36
31	3.2	....	3.5	....	2.48	....	2.58	2.20	....	2.16	....	3.25
1913												
1	2.76	2.81	3.15	3.05	2.51	2.82	2.29	2.17	2.18	2.14	2.10	2.33
2	2.58	2.70	2.91	2.96	2.48	2.74	2.30	2.16	2.15	2.16	2.10	2.56
3	2.60	2.70	2.75	2.88	2.46	2.68	2.82	2.16	2.14	2.14	2.11	2.46
4	2.68	2.81	2.66	2.81	2.44	2.62	2.40	2.14	2.24	2.10	2.14	2.34
5	2.62	2.85	2.60	2.76	2.44	2.60	2.64	2.14	2.16	2.12	2.13	2.29
6	2.62	2.76	2.53	2.70	2.42	2.56	2.36	3.5	2.19	2.10	2.12	2.24
7	2.64	2.68	2.50	2.66	2.44	2.52	2.30	2.44	2.12	2.13	2.11	2.29
8	2.62	2.62	2.48	2.66	2.40	2.55	2.23	2.30	2.12	2.14	2.06	2.32
9	2.56	2.56	2.44	2.64	2.40	2.56	2.24	2.24	2.13	2.14	2.26	2.32
10	2.50	2.56	2.46	2.60	2.39	2.51	2.21	2.24	2.13	2.12	2.42	2.27
11	2.42	2.52	2.58	2.60	2.36	2.42	2.27	2.19	2.14	2.12	2.22	2.28
12	2.46	2.54	2.60	2.90	2.32	2.52	2.34	2.39	2.13	2.12	2.19	2.24
13	2.82	2.49	2.55	4.7	2.42	2.54	2.32	2.46	2.09	2.10	2.16	2.21
14	2.68	2.48	4.45	3.7	2.32	2.43	2.22	2.31	2.09	2.10	2.16	2.20
15	2.56	2.48	4.6	3.45	2.04	2.38	2.22	2.45	2.10	2.10	2.17	2.11
16	2.50	2.48	4.15	3.4	2.42	2.40	2.20	2.26	2.13	2.15	2.18	2.08
17	2.48	2.44	3.4	3.25	2.38	2.37	2.20	2.22	2.16	2.12	2.20	2.14
18	2.45	2.42	3.1	3.1	2.38	2.34	2.21	2.18	2.15	2.10	2.32	2.10
19	2.40	2.38	2.96	2.96	2.32	2.52	2.17	3.05	2.21	2.14	2.24	2.08
20	2.41	2.40	2.89	2.86	2.31	2.46	2.21	2.66	2.16	2.28	2.22	2.12
21	2.36	2.44	2.82	2.78	2.51	2.38	2.20	2.45	2.34	2.24	2.18	2.10
22	2.38	2.46	2.78	2.72	2.74	2.36	2.19	2.37	2.39	2.18	2.17	2.10
23	2.40	2.44	2.65	2.70	4.15	2.50	2.20	2.44	2.24	2.14	2.16	2.06
24	2.41	2.46	2.64	2.64	4.4	2.88	2.32	2.34	2.18	2.17	2.14	2.12
25	2.48	2.44	2.62	2.62	3.35	2.58	2.15	2.30	2.13	2.28	2.06	2.15

Daily gage height, in feet, of Reed Creek at Grahams Forge, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
26	2.66	2.40	2.79	2.60	3.0	2.46	2.00	2.26	2.12	2.21	2.12	2.32
27	3.25	2.70	7.9	2.63	3.85	2.42	2.16	2.22	2.12	2.20	2.10	2.31
28	3.9	3.6	4.6	2.60	4.25	2.37	2.26	2.18	2.10	2.16	2.12	2.24
29	3.25	....	3.7	2.59	3.45	2.34	2.56	2.18	2.12	2.14	2.02	2.31
30	2.97	....	3.45	2.54	3.15	2.30	2.30	2.25	2.21	2.11	2.08	2.30
31	2.84	....	3.25	....	2.98	....	2.22	2.26	....	2.14	....	2.38
1914												
1	2.46	2.94	2.92	3.6	2.44	2.18	2.06	2.05	2.16	2.11	2.08	2.82
2	2.40	2.74	2.75	3.6	2.43	2.18	2.12	2.12	2.13	2.08	2.12	3.1
3	2.38	2.66	2.78	3.35	2.40	2.18	2.14	2.04	2.12	2.10	2.16	3.35
4	2.44	2.57	2.77	3.1	2.42	2.19	2.10	2.12	2.14	2.10	2.18	3.35
5	2.44	2.56	2.74	2.94	2.48	2.18	2.07	1.92	2.08	2.04	2.17	4.9
6	2.39	2.88	2.73	2.85	2.64	2.18	2.08	2.04	2.12	2.15	2.16	3.6
7	2.40	3.9	2.73	2.78	2.64	2.20	2.12	2.08	2.02	2.14	2.14	3.15
8	2.43	3.45	2.73	2.76	2.62	2.19	2.09	2.10	2.14	2.12	2.16	2.92
9	2.63	3.05	2.70	2.72	2.58	2.30	2.14	2.10	2.15	2.10	2.06	2.79
10	3.45	2.86	2.66	2.64	2.54	2.08	2.18	2.08	2.24	2.10	2.16	2.70
11	3.1	2.76	3.1	2.60	2.48	2.08	2.34	2.12	2.10	2.08	2.16	2.60
12	2.82	2.66	4.2	2.59	2.46	2.16	2.16	2.13	1.91	2.00	2.16	2.52
13	2.64	2.63	3.45	2.56	2.43	2.13	2.09	2.13	2.17	2.12	2.16	2.50
14	2.64	2.54	3.2	2.56	2.40	2.16	2.36	2.12	2.05	2.11	2.14	2.48
15	2.54	2.60	3.1	2.80	2.36	2.14	2.50	2.09	2.13	2.19	2.28	2.24
16	2.48	2.56	3.1	2.94	2.34	2.14	2.21	2.12	2.12	2.48	2.34	2.46
17	2.50	2.56	3.1	2.96	2.30	1.94	2.46	1.97	2.14	2.38	2.32	2.40
18	2.47	2.60	3.1	2.87	2.34	2.06	2.34	2.12	2.14	2.26	2.23	2.36
19	2.42	3.35	2.95	2.82	2.29	2.10	2.16	2.00	2.16	2.20	2.20	2.38
20	2.52	4.4	2.87	2.97	2.28	2.15	2.16	2.08	2.14	2.16	2.20	2.60
21	2.72	3.85	2.80	2.98	2.26	2.16	2.15	2.08	2.10	2.14	2.05	2.98
22	2.63	3.45	2.78	2.86	2.24	2.14	2.12	2.16	2.16	2.18	2.19	3.35
23	2.50	3.35	2.79	2.75	2.26	2.16	2.12	2.08	2.04	2.16	2.14	2.97
24	2.50	3.25	2.82	2.70	2.24	2.10	2.14	1.99	2.14	2.12	2.15	2.80
25	2.76	3.1	2.83	2.65	2.22	2.11	2.12	2.09	2.12	2.16	2.17	2.95
26	2.73	3.05	2.82	2.61	2.22	2.12	2.12	2.64	2.10	2.14	2.16	3.0
27	2.61	2.98	2.80	2.60	2.20	2.08	2.04	2.56	2.14	2.15	2.14	2.82
28	2.54	2.95	2.75	2.54	2.18	2.10	2.16	3.00	2.02	2.15	2.12	3.05
29	2.46	....	2.72	2.50	2.17	2.04	2.14	2.56	2.13	2.16	2.18	2.93
30	2.45	....	3.15	2.50	2.20	2.12	2.04	2.33	2.10	2.13	2.42	3.45
31	2.70	....	3.85	....	2.21	....	2.08	2.22	....	2.13	....	3.45

NOTE.—Ice present as follows:

1909: Dec. 10-31; slush ice and ice along shore.
1910: Dec. 8-23.
1912: Jan. 1-20 and about Feb. 4-6.
1914: Feb. 17; frozen over at riffle below gage.
1911 and 1913: No ice reported.

BIG REED ISLAND CREEK NEAR ALLISONIA, VA.

Location.—About 1,200 feet above suspension footbridge at J. P. Thomas' farm, about three-fourths mile above mouth of creek; 1½ miles from Allisonia, and half a mile above mouth of Little Reed Island Creek.

Drainage area.—291 square miles.

Records available.—July 31, 1908, to December 31, 1914.

Gage.—Vertical staff fastened to a tree on right bank; read once daily.

Discharge measurements.—Made from the footbridge or by wading.

Channel and control.—Channel at the bridge is liable to change and will overflow on right bank. Gage is above influence of backwater from New River. Control practically permanent.

Extremes of stage.—Maximum mean daily gage height: 4.8 feet, May 12, 1912. Minimum stage observed: 0.28 foot at 6 P. M., August 20, 1914.

Winter flow.—Discharge relation at times affected by ice.

Accuracy.—Gage-height record reliable.

Data insufficient for computation of discharge.

Discharge measurements of Big Reed Island Creek near Allisonia, Va., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
Aug. 1	O'Neill and Chapman	0.72	384
Aug. 18	W. M. O'Neill	.63	323
1909			
June 12	H. J. Jackson	1.05	588
1910			
Mar. 16	C. T. Bailey	.69	344
Oct. 24	do	.52	254
1911			
July 19	Horton and Bailey	.40	172
1913			
Dec. 12	Peterson and Walters	.60	252
Dec. 12	do	.68	323
1914			
Oct. 7	Mathers and Morgan	.44	182
Oct. 7	do	.44	179

Daily gage height, in feet, of Big Reed Island Creek near Allisonia, Va., for 1908–1914.

[J. P. Thomas, Arie Lilly, and K. M. Thomas, observers.]

Day	Aug.	Sept.	Oct.	Nov.	Dec.	Day	Aug.	Sept.	Oct.	Nov.	Dec.
1908						1908					
1	....	0.6	0.6	0.75	0.7	16	0.6	0.6	0.6	0.8	0.7
2	0.64	.6	.6	.8	.7	17	.65	.6	.6	.8	.7
3	.62	.6	.6	.8	.7	18	.5	.5	.6	.8	.75
4	.6	.6	.55	.8	.7	19	.6	.5	.6	1.15	.8
5	.64	.65	.5	.8	.7	20	.6	.5	.6	.85	.8
6	1.75	1.05	.5	.8	.7	21	.6	.5	.6	.8	.8
7	1.2	.8	.5	.8	1.3	22	.65	.5	.6	.8	.8
8	.9	1.3	.5	.75	1.2	23	.75	.5	.6	.8	.85
9	.9	.75	.5	.7	.95	24	.7	.5	.6	.8	.9
10	.82	.7	1.9	.7	.8	25	1.0	.5	1.15	.8	1.05
11	.74	.6	1.35	.75	.8	26	1.7	.5	.8	.8	1.15
12	.7	.6	.85	.8	.9	27	1.3	.5	.8	.75	.9
13	.68	.6	.75	.8	.8	28	.8	.85	.95	.7	.8
14	.65	.6	.7	.8	.8	29	.8	.9	1.95	.7	.8
15	.65	.6	.65	.8	.8	30	.7	.65	1.5	.7	.8
						31	.7	....	1.0	....	.85

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	....	0.8	0.9	0.8	2.05	1.0	1.15	1.15	0.6	0.5	0.6	0.5
2	....	1.15	.9	.8	1.45	.95	1.1	2.05	.5	.5	.6	.5
3	0.8	1.2	.9	.8	1.1	.95	.9	1.15	.5	.6	.6	.5
4	.8	.95	.95	.8	.95	2.15	.9	1.0	.7	.6	.6	.5
5	1.5	.9	.85	.8	.9	1.35	.8	.9	.65	.6	.5	.5
6	1.4	.8	.85	.7	.9	1.05	.9	1.0	.65	.6	.5	.5
7	1.05	.8	1.05	.7	.9	1.0	1.1	.9	.65	.6	.5	.55
8	.95	.7	1.0	.75	.8	.9	1.15	.8	.6	.5	.5	1.0
9	.9	.7	1.0	.85	.8	1.45	.9	.8	.8	.5	.5	.6
10	.85	1.05	1.0	.8	1.65	1.2	.9	.8	1.0	.6	.5	.6
11	.8	1.15	.95	.7	1.2	1.4	.8	.7	.8	1.9	.6	.55
12	.8	.9	.9	.7	1.0	1.1	.8	.7	.7	1.6	.6	.75
13	.8	.8	.9	.8	.9	1.55	.9	.8	.6	.9	.6	1.3
14	.8	.85	.9	3.35	.8	1.4	.9	.9	.6	.8	.5	1.4
15	.8	.85	.9	1.7	.8	1.5	.8	.85	.6	.7	.5	.85
16	.8	1.1	.8	1.35	.8	1.15	.8	.9	.6	.7	.5	.65
17	1.1	1.0	.8	1.15	.8	1.85	.8	.85	.9	.6	.55	.7
18	1.2	.9	.8	1.0	.8	1.75	.8	.7	.9	.6	.5	.7
19	1.0	.9	.8	1.0	.8	1.15	.7	.7	.6	.6	.5	.7
20	.9	1.25	.8	.95	1.1	1.0	.7	.7	.65	.6	.5	.6
21	.9	.95	.8	.9	2.65	1.0	.7	.6	.8	.6	.5	.7
22	.9	1.1	.9	.9	1.8	1.0	.7	.6	.7	6	.5	.9
23	.85	1.2	.8	.9	1.25	1.0	.95	.6	.6	.6	.6	.6
24	.8	1.75	.8	.95	1.1	1.3	.8	.6	.65	.7	.5	.6
25	.8	1.75	1.25	.8	1.1	1.05	.7	.6	.6	.6	.5	.8
26	.8	1.25	1.1	.8	1.35	1.0	.7	.6	.6	.6	.5	.65
27	.8	1.05	.95	.8	1.5	1.25	.9	.6	.6	.6	.5	.75
28	.8	1.0	....	.8	1.2	1.0	1.05	.6	.5	.6	.5	.75
29	.7	....	....	.8	1.05	1.15	.9	.6	.5	.6	.5	.7
30	.7	....	....	.9	1.0	1.35	.8	.6	.5	.6	.5	.6
31	.7	....	....	....	.9	....	.8	.6	....	.6	....	.65

Daily gage height, in feet, of Big Reed Island Creek near Allisonia, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
1	......	0.65	2.1	0.60	0.6	0.6	0.7	0.6	1.0	0.4	0.5	0.5
2	1.0	.75	1.35	.5	.6	.6	.6	.6	.95	.4	.5	.5
3	1.05	.85	.85	.65	.6	.6	.75	.5	.85	.4	.5	.5
4	.8	.7	.75	.95	.6	.6	.8	.5	1.2	.4	.5	.6
5	.65	.75	.7	.75	.6	.7	.65	.6	.85	.4	.5	.6
6	.65	.95	.8	.7	.6	.9	.6	.6	.65	.4	.5	1.25
7	2.0	.95	.8	.6	.6	.75	1.1	.6	.6	2.15	.5	.8
8	1.0	.95	.8	.6	.6	.65	1.1	.5	.65	1.4	.5	.6
9	.85	.85	.8	.6	.6	.65	.95	.5	.7	1.65	.5	.6
10	.65	.8	.8	.6	.6	1.05	.75	.5	.55	.85	.5	.6
11	.65	.85	.8	.6	.6	1.55	.6	.5	.5	.7	.45	.5
12	.6	.65	.7	.6	.65	2.85	1.3	.5	.5	.7	.4	.5
13	.65	.95	.7	.95	.6	3.4	1.3	.5	.5	.6	.4	.5
14	.65	.85	.7	.75	.6	2.65	1.25	.5	.5	.5	.45	.5
15	.6	.9	.7	.7	.6	1.85	.95	.5	.5	.5	.5	.6
16	.6	.95	.7	.6	.6	1.55	.8	.5	.5	.5	.5	.7
17	.6	1.45	.7	.9	.6	1.25	1.2	.5	.5	.5	.4	.6
18	.6	2.65	.7	1.1	.7	1.15	1.1	.5	.5	.5	.4	.7
19	.65	1.3	.7	.8	.6	1.1	.95	.5	.4	.55	.5	.5
20	.6	.95	.7	.8	.6	1.1	.75	.5	.4	.75	.5	.5
21	1.7	1.1	.7	.8	.7	1.2	.7	.5	.4	.6	.5	.5
22	1.3	.95	.7	.75	.7	.95	.7	.5	.4	.6	.5	.5
23	.85	.95	.6	.7	1.2	.95	.7	.5	.4	.6	.5	.6
24	.75	.95	.6	.6	1.0	1.05	.65	.5	.4	.5	.5	......
25	.7	1.0	.6	.7	1.15	.95	.6	.8	.4	.5	.5	......
26	.7	.85	.6	.8	1.2	.85	.55	.8	.4	.5	.5	......
27	.65	.85	.6	.7	.85	.8	.6	.85	.4	.5	.5	......
28	.65	1.3	.6	.7	.8	.8	.6	.6	.5	.6	.55	......
29	.65	......	.6	.6	.7	.7	.6	.5	.45	.5	.55	......
30	.65	......	.6	.6	.7	.7	.6	.65	.4	.5	.5	......
31	.6	......	.6	......	.7	......	.65	.75	......	.5	......	......
1911												
1	......	0.75	0.6	0.65	0.9	0.7	0.5	0.3	0.7	0.3	0.5	0.56
2	1.5	.65	.6	.6	.85	.6	.4	.3	.55	.4	.5	.54
3	1.6	.6	.6	.6	.7	.5	.4	.3	.55	.6	.4	.54
4	1.6	.6	.6	.65	.7	.5	.4	.3	.4	.5	.4	.52
5	.95	.6	.6	1.85	.65	.5	.65	.5	.4	.4	.4	.43
6	.8	.7	.65	1.75	.6	.65	.55	1.05	.35	.4	.55	.44
7	.8	.7	.8	1.1	.6	.75	.5	.55	.3	.4	.95	.56
8	.7	.8	.8	1.65	.6	1.05	1.05	.4	.3	.5	.6	.48
9	.7	1.2	1.15	1.25	.6	.65	.65	.4	.4	.5	.6	.46
10	.7	1.2	1.0	1.05	.6	.55	.55	.35	.55	.4	.65	.47
11	.7	.95	1.0	.9	.6	.5	.5	.3	.5	.5	.6	.48
12	.7	.8	.85	.95	.6	.5	.5	.4	.5	.5	.56	.50
13	.6	.7	.75	1.0	.75	.5	.6	.6	.4	.4	1.05	.48
14	.6	.7	.8	1.25	1.7	.5	.65	.55	.3	.4	.66	.48
15	.6	.7	.8	1.45	.95	.5	.55	.4	.3	.4	.53	.56
16	.6	.7	.7	1.4	.8	.5	.4	.4	.3	.4	.58	1.2
17	.6	.7	.6	1.05	.7	.5	.4	.35	.3	.5	.54	1.1
18	.6	.7	.65	.9	.7	.5	.4	.3	.35	[a]2.4	.54	.76
19	.6	.7	.7	.95	.6	.5	.4	.3	.3	.85	.56	.66
20	.6	.7	.75	1.05	.6	.5	.4	.3	.3	.65	.60	.60
21	.6	.7	.65	.9	.6	.5	.4	.3	.35	.6	.54	.66
22	.75	.7	.6	.8	.6	.4	.4	.3	.9	.55	.51	.94
23	.95	.6	.6	.8	.65	.4	.4	.3	.65	.85	.50	1.6
24	.75	.6	.6	.8	.6	.4	.3	.3	.5	.6	.54	.98
25	.7	.6	.6	.8	.6	.5	.35	.3	.4	.5	.62	1.2

[a] Gage height was 3.3 feet at 7 A. M., Oct. 18.

Daily gage height, in feet, of Big Reed Island Creek near Allisonia, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911												
26	.7	.6	.6	.7	.6	.5	.35	.65	.4	.5	.50	.94
27	.7	.6	.85	.7	.55	.6	.3	1.35	.4	.5	.50	1.0
28	.6	.6	.75	.7	.6	1.1	.3	.5	.4	.5	.52	.85
29	.6	....	.7	.7	.55	.7	.3	.55	.4	.5	.72	.80
30	1.0	....	.7	.8	.5	.55	.3	1.15	.35	.5	.66	.72
31	1.0	....	.7	....	.75	......	.3	.9	....	.5	....	....
1912												
1	0.90	0.74	0.82	1.25	0.95	0.81	1.05	0.66	0.42	0.50	0.47	0.57
2	.66	.77	.71	1.4	.88	.80	.86	.59	.35	.47	.75	.58
3	.62	.66	.80	1.35	.82	.85	.70	.50	.30	.48	.51	.60
4	.58	.70	.76	1.15	.81	.83	1.0	.73	.35	.48	.46	.54
5	.55	.82	.82	1.05	.78	.81	.77	.72	.35	.47	.48	.89
6	....	.99	.80	.99	.80	.79	1.05	.54	.37	.46	.46	.92
7	....	.99	.80	1.0	.80	.77	.75	.50	.33	.47	1.98	.88
8	....	.94	.94	1.15	.82	.74	.80	.49	.40	.45	1.53	.70
9	....	.86	1.2	1.05	.74	.71	.75	.55	.45	.43	.85	.62
10	....	.74	1.05	.99	.68	.71	.89	.56	.37	.42	.70	.58
11	....	.64	.94	.90	.79	.70	.76	.60	.35	.43	.64	.57
12	....	.56	1.05	.88	4.8	.69	.79	.48	.32	.43	.63	.55
13	....	.51	1.6	.84	2.6	.68	.73	.60	.34	.44	.66	.50
14	1.05	.51	1.2	.86	1.4	.60	.82	.52	.43	.54	.76	.49
15	1.1	.52	2.4	.86	1.4	.88	.73	.47	.45	.75	.67	.51
16	1.1	.58	2.1	.84	2.4	.78	.62	.65	.62	.50	.58	.60
17	1.1	.53	1.4	.88	2.0	.71	.70	.50	.35	.54	.44	.45
18	1.15	.58	1.15	.92	1.45	.68	.76	.48	.53	.47	.49	.50
19	1.25	.63	1.0	.84	1.25	1.05	1.1	.45	.53	.50	.57	.60
20	1.4	.60	.96	.79	1.15	.68	.68	.50	.65	.70	.55	.59
21	1.1	.71	.91	.80	1.1	.65	.62	.48	.55	.50	.50	.54
22	1.05	2.2	.86	.88	1.0	.63	.72	.47	.38	.48	.51	.49
23	1.0	.98	.86	1.0	1.0	.77	.60	.53	1.8	.45	.51	.50
24	.96	.90	1.25	.82	.96	.92	.55	.41	1.9	.50	.52	.58
25	.88	1.25	1.3	.78	.93	.74	.65	.38	1.25	.49	.50	.67
26	.80	1.2	1.1	.77	.92	.70	.62	.40	.72	.47	.49	.72
27	.79	1.7	.98	.91	.96	.68	.52	.48	.66	.45	.50	.80
28	.78	1.1	.90	.94	.88	.67	.50	.40	.62	.45	.50	.90
29	.68	.94	2.7	.88	.88	.70	.49	.40	.54	.45	.54	.89
30	1.3	....	1.7	1.25	.94	.72	.48	.49	.52	.46	.50	.72
31	.92	....	1.25	....	.87	......	.52	.44	....	.47	....	1.1
1913												
1	0.75	0.81	0.94	0.95	0.85	1.0	0.66	0.56	0.50	0.65	0.66	0.88
2	.65	.70	.81	.93	.82	.96	.70	.49	.45	.59	.65	1.25
3	.65	.81	.69	.90	.80	1.7	.71	.47	.45	.58	.64	.91
4	.87	.91	.65	.86	.78	.95	.81	.44	1.7	.56	.64	.80
5	.77	.74	.64	.87	.75	.89	.79	.43	1.15	.54	.62	.79
6	.68	.66	.60	.83	.72	.85	.64	.41	.70	.54	.62	.71
7	.64	.59	.58	.80	.74	.83	.58	.43	.56	.53	.63	.78
8	.66	.63	.57	.81	.78	.90	.57	.50	.54	.66	.69	.76
9	.63	.83	.56	.80	.72	.96	.55	.62	.64	.68	2.0	.74
10	.58	.70	.66	.80	.73	.85	.53	.57	.52	.68	1.2	.72
11	.57	.62	.87	.96	.75	.81	1.5	.58	.48	.61	.86	.74
12	.59	.64	.70	3.0	.70	.93	.88	.83	.48	.86	.81	.77
13	.69	.52	.63	2.0	.70	1.05	.80	.70	.47	.61	.78	.72
14	.60	.48	4.0	1.5	.70	.92	.61	.60	.45	.56	.76	.68
15	.53	.52	2.8	1.25	.69	.72	.60	.51	.44	.55	.73	.65
16	.55	.59	1.9	1.25	.87	.75	.60	.50	.49	.53	.72	.65
17	.54	.57	1.35	1.1	1.15	.75	.50	.47	.48	.52	.92	.64
18	.56	.55	1.1	1.0	1.0	.74	.55	.54	.84	.55	.77	.64
19	.60	.51	1.0	1.05	.81	.72	.53	.60	.80	.63	.74	.61
20	.57	.60	.98	.98	.74	.70	.61	.80	1.9	2.0	.70	.63

Daily gage height, in feet, of Big Reed Island Creek near Allisonia, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
21	.56	.80	1.0	.84	1.0	.67	.53	.55	4.0	1.15	.68	.63
22	.54	.74	1.25	.82	1.0	.67	.51	.54	1.8	.83	.67	.62
23	.52	.68	.98	.80	3.2	.96	.48	.60	1.1	.74	.67	.63
24	.57	.61	.92	.88	3.0	.95	.47	.55	.76	1.5	.64	.74
25	.56	.59	.89	.85	1.6	1.0	.50	.49	.75	1.45	.63	.74
26	.66	.58	1.1	.82	1.25	1.05	.50	.46	.75	.92	.61	1.05
27	1.0	.91	3.1	1.1	1.5	.81	.57	.48	.61	.80	.56	.76
28	1.55	1.35	1.75	.93	1.5	.73	.52	.82	.60	.80	.62	.77
29	.97	....	1.3	.91	1.2	.67	.50	.48	.63	.73	.63	.74
30	.82	....	1.1	.88	1.1	.66	.51	1.3	.60	.69	.64	.73
31	.77	....	1.05	....	1.25	....	.63	.82	....	.65	....	.69
1914												
1	0.70	1.5	0.94	1.2	0.73	0.57	0.35	0.36	0.48	0.31	0.41	1.45
2	.68	1.15	1.1	1.25	.73	.55	.77	.34	.58	.30	.42	1.3
3	.58	.96	1.25	.98	.72	.53	.45	.33	.51	.31	.42	.93
4	.88	.91	.93	.92	.71	.51	.45	.38	.44	.39	.41	.94
5	.83	.90	.89	.87	.98	.52	.45	.36	.37	.87	.41	2.8
6	.79	1.05	.90	.84	1.0	.62	.51	.37	.36	.51	.39	1.3
7	.75	1.65	.96	.82	.81	.60	.84	.35	.36	.43	.38	1.05
8	.76	1.25	.95	1.3	.79	.63	.49	.33	.70	.38	.37	.92
9	.88	1.05	.80	1.1	.76	.60	.47	.32	.67	.44	.53	.82
10	1.0	.99	.81	.94	.75	.64	.59	.65	.47	.39	.50	.83
11	.98	.97	1.05	.88	.70	.67	.46	.82	.44	.33	.44	.81
12	.82	.92	1.3	.84	.69	.95	.38	.80	.54	.31	.40	.75
13	.73	.97	1.1	.83	.72	.56	.37	.52	.46	.48	.38	.78
14	.97	1.45	1.0	.87	.70	.54	1.35	.47	.42	.48	.43	.83
15	.99	1.5	1.0	1.05	.66	.50	.76	.40	.40	.44	1.5	.73
16	.88	1.05	1.05	1.2	.66	.46	.87	.38	.36	2.4	1.15	1.1
17	.91	1.1	1.05	1.0	.65	.45	.76	.35	.37	.82	.61	1.1
18	.80	1.15	1.45	.93	.65	.44	.64	.34	.42	.64	.53	1.05
19	.76	1.25	1.1	.88	.63	.48	.50	.31	.42	.45	.51	1.0
20	1.0	1.85	1.05	1.5	.62	.49	.44	.28	.40	.51	.61	1.25
21	1.25	1.4	.97	1.1	.60	.49	.40	.30	.42	.49	.43	1.15
22	1.0	1.2	.98	.97	.60	.44	.37	.62	.37	.47	.70	1.2
23	.90	1.2	.94	.91	.58	.41	.37	.35	.38	.46	.70	.95
24	.92	1.05	.91	.87	.58	.37	.35	.31	.48	.58	.56	.91
25	1.6	.98	.90	.85	.57	.34	.34	.39	.38	.56	.61	1.55
26	1.15	.96	.88	.82	.56	.37	.37	1.0	.36	.51	.59	1.2
27	.94	.95	.87	.78	.55	.51	.60	.99	.33	.46	.57	.87
28	.87	.94	.92	.77	.54	.62	.44	1.2	.32	.43	.50	.84
29	.84	....	.89	.77	.57	.44	.40	.86	.32	.42	.47	1.0
30	.81	....	1.0	.76	.78	.37	.33	.58	.31	.42	1.7	1.55
31	2.5	....	.96	....	.60	....	.33	.51	....	.41	....	1.15

NOTE.—Ice present as follows:

1909: Slush ice and frozen along shore Dec. 10-31. Stream did not freeze across.

1910: Jan. 1-25; Feb. 7-13, and Dec. 13-24. On Dec. 24 the gage was torn away by the ice going out.

1911: Slush ice running Jan. 11 and Feb. 21. Observer reported backwater Dec. 7.

1912: Jan. 3-20 and Feb. 2-16. Observer reported backwater Jan. 18; creek frozen across at some places Jan. 20, ice 6 to 10 inches thick; backwater Feb. 5 and 6, ice about 5 inches thick.

1913: Feb. 6-15; slush ice Feb. 8; backwater Feb. 9.

1914: Jan. 14-20; Feb. 14-18; Mar. 2-3.

LITTLE RIVER NEAR COPPER VALLEY, VA.

Location.—At highway bridge about 600 feet above mouth of Indian Creek, about half a mile north of Copper Valley, and about 5 miles south of Childress.

Drainage area.—195 square miles.

Records available.—July 25, 1908, to December 31, 1914.

Gage.—Chain attached to bridge; read twice daily.

Discharge measurements.—Made from bridge.

Channel and control.—Left bank high, wooded, and not liable to overflow; right bank low and clean, and overflows. All water passes beneath the bridge. Bed composed of rocks and sand. Control section probably permanent.

Extremes of stage.—Maximum mean daily gage height: 8.1 feet, March 14, 1913. High water of about 1900 is reported to have been at a stage of approximately 12.9 feet. Minimum stage observed: 3.05 feet in August, 1911, and July, 1914.

Winter flow.—Discharge relation affected by ice for short periods.

Accuracy.—Gage-height record reliable.

Data insufficient for computations of discharge.

Discharge measurements of Little River near Copper Valley, Va., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
July 28....	O'Neill and Chapman	3.74	337
Aug. 21...	W. M. O'Neill.....	3.39	182
1909			
June 11 ...	H. J. Jackson......	4.17	538
Dec. 8.....	A. H. Horton......	3.82	337
1910			
Mar. 14...	C. T. Bailey........	3.60	228
Oct. 19....	.....do	3.41	155
1911			
July 18...	Horton and Bailey.	3.25	125
1912			
Sept. 21..	C. T. Bailey........	3.30	152
1913			
Dec. 10...	Walters and Peterson	3.31	138
1914			
Oct. 6....	Mathers and Morgan	3.47	178

Daily gage height, in feet, of Little River near Copper Valley, Va., for 1908–1914.

[William J. Trail and Thomas A. DeHart, observers.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908						
1		3.45	3.44	3.43	4.06	3.71
2		......	3.41	3.40	3.96	3.72
3		3.35	3.39	3.37	3.88	3.61
4		3.34	3.39	3.36	3.85	3.59
5		3.34	3.44	3.36	3.79	3.71
6		4.04	4.36	3.34	3.72	3.67
7		3.98	4.29	3.33	3.71	4.62
8		3.44	4.42	3.33	3.71	4.23
9		......	3.66	3.37	3.71	3.95
10		4.05	3.51	5.77	3.71	3.81
11		3.32	3.48	4.73	3.73	3.78
12		3.40	3.48	3.96	3.81	3.90
13		3.38	3.42	3.76	3.71	3.84
14		3.35	3.42	3.67	3.73	3.75
15		3.34	3.40	3.62	3.82	3.71
16		......	3.39	3.57	3.86	3.71
17		3.42	3.36	3.52	3.86	3.68
18		3.34	3.38	3.53	3.95	3.68
19		3.36	3.36	3.52	4.38	3.72
20		3.32	3.38	3.53	4.07	3.70
21		3.32	3.38	3.50	3.93	3.66
22		3.32	3.39	3.50	3.83	3.71
23		3.40	3.39	3.86	3.81	3.81
24		3.42	3.36	6.50	3.77	3.80
25		3.69	3.34	4.51	3.75	3.87
26		5.14	3.34	4.12	3.72	4.26
27		3.85	3.33	3.96	3.71	3.98
28		3.62	3.84	4.13	3.66	3.94
29	4.56	3.66	3.86	5.29	3.67	3.97
30	4.66	3.46	3.48	4.90	3.71	4.22
31	4.02	3.49	......	4.26	......	4.88

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	4.26	3.72	3.82	3.63	4.63	3.94	4.06	4.35	3.42	3.34	3.35	3.35
2	4.25	3.85	3.83	3.61	4.22	3.97	4.01	5.52	3.38	3.31	3.35	3.35
3	3.94	3.80	3.82	3.61	3.93	3.97	3.76	4.32	3.30	3.32	3.44	3.38
4	3.98	3.90	3.92	3.61	3.81	4.93	3.65	3.98	3.42	3.29	3.38	3.35
5	4.64	3.80	3.76	3.58	3.78	4.31	3.68	3.80	3.49	3.31	3.35	3.34
6	4.57	3.85	3.82	3.58	3.73	4.07	3.85	4.12	3.41	3.34	3.32	3.30
7	4.16	3.75	4.00	3.57	3.72	3.98	4.12	3.95	3.41	3.35	3.39	3.38
8	4.00	3.68	3.93	3.55	3.71	3.94	4.05	3.66	3.51	3.32	3.39	3.60
9	3.96	3.75	3.92	3.58	3.68	4.08	3.78	3.60	3.62	3.32	3.40	3.42
10	3.91	4.30	3.86	3.55	4.14	4.03	3.76	3.55	4.22	3.30	3.41	3.40
11	3.87	3.95	3.82	3.53	3.90	4.03	3.72	3.54	3.70	4.56	3.44	3.40
12	3.81	3.78	3.75	3.53	3.74	3.98	3.68	3.58	3.56	4.44	3.41	3.51
13	3.70	3.78	3.74	3.71	3.72	4.04	3.70	3.55	3.50	3.58	3.39	3.58
14	3.75	3.75	3.80	7.03	3.70	3.95	3.78	3.56	3.46	3.45	3.36	4.48
15	3.85	3.72	3.66	4.83	3.67	3.91	3.68	3.70	3.46	3.52	3.38	3.68
16	3.95	3.92	3.66	4.35	3.64	3.90	3.64	3.92	3.49	3.49	3.40	3.50
17	4.30	3.85	3.65	4.11	3.63	4.01	3.66	3.68	3.70	3.48	3.39	3.36
18	4.35	3.75	3.63	4.01	3.62	4.18	3.60	3.55	3.55	3.44	3.35	3.48
19	4.25	3.72	3.62	3.91	3.58	3.91	3.59	3.55	3.55	3.44	3.35	3.38
20	4.20	4.08	3.63	3.91	3.74	3.86	3.52	3.49	3.49	3.42	3.32	3.50
21	4.05	3.82	3.63	3.85	7.13	3.80	3.51	3.45	3.45	3.40	3.32	3.55
22	4.00	3.92	3.70	3.83	5.38	3.79	3.52	3.45	3.60	3.42	3.35	3.38
23	3.95	4.05	3.60	3.85	4.56	3.82	3.60	3.41	3.58	3.40	3.42	3.35
24	3.95	4.15	3.60	3.95	4.26	3.88	3.58	3.44	3.50	3.45	3.40	3.45
25	3.90	4.38	3.94	3.75	4.22	3.84	3.52	3.40	3.45	3.41	3.35	3.52
26	3.88	4.10	3.82	3.78	4.64	3.79	3.49	3.45	3.40	3.40	3.35	3.48
27	3.85	3.95	3.69	3.77	4.82	3.81	3.64	3.46	3.39	3.40	3.35	3.49
28	3.78	3.88	3.88	3.75	4.31	3.75	3.73	3.44	3.36	3.36	3.35	3.53
29	3.75	......	3.80	3.74	4.13	3.90	3.68	3.41	3.36	3.35	3.36	3.45
30	3.75	......	3.70	3.77	4.02	4.02	3.80	3.46	3.35	3.40	3.35	3.45
31	3.50	......	3.66	......	4.00	......	3.66	3.42	......	3.41	......	3.45
1910												
1	3.54	3.47	4.78	3.39	3.44	3.28	3.52	3.42	4.14	3.44	3.35	3.22
2	3.72	3.73	4.54	3.49	3.43	3.28	3.47	3.41	3.78	3.35	3.37	3.22
3	3.92	3.74	4.10	3.54	3.46	3.25	3.45	3.43	3.55	3.30	3.40	3.34
4	3.78	3.93	3.90	3.80	3.46	3.22	3.67	3.43	4.01	3.27	3.38	3.32
5	3.62	3.80	3.80	3.59	3.42	3.37	3.66	3.46	3.76	3.25	3.35	3.45

Daily gage height, in feet, of Little River near Copper Valley, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	3.52	3.74	3.93	3.50	3.38	3.69	3.65	3.42	3.54	3.28	3.28	3.71
7	4.61	3.48	4.00	3.44	3.40	3.45	3.69	3.38	3.42	4.30	3.32	3.64
8	3.71	3.84	3.79	3.37	3.59	3.32	3.85	3.39	3.42	4.31	3.35	3.66
9	3.44	3.70	3.72	3.36	3.74	3.30	3.81	3.41	3.38	4.76	3.32	3.66
10	3.65	3.76	3.69	3.30	3.59	3.51	3.62	3.37	3.40	3.76	3.34	3.64
11	3.60	3.83	3.69	3.34	3.49	3.92	3.55	3.37	3.36	3.56	3.32	3.58
12	3.60	3.78	3.68	3.42	3.41	5.19	3.53	3.36	3.38	3.54	3.31	3.36
13	3.65	3.78	3.62	3.84	3.43	5.77	3.81	3.32	3.41	3.44	3.27	3.25
14	3.55	3.83	3.54	3.66	3.41	5.82	4.09	3.35	3.36	3.42	3.30	3.31
15	3.52	3.80	3.49	3.48	3.41	4.75	4.07	3.37	3.38	3.42	3.44	3.43
16	3.55	3.90	3.47	3.47	3.37	4.65	3.69	3.45	3.36	3.38	3.41	3.50
17	3.50	4.73	3.49	4.06	3.36	4.27	4.68	3.43	3.32	3.38	3.32	3.34
18	3.49	6.00	3.48	4.14	3.41	4.02	4.82	3.43	3.30	3.38	3.32	3.35
19	3.51	4.12	3.47	3.80	3.55	3.85	4.09	3.43	3.28	3.34	3.35	3.40
20	3.40	4.00	3.48	3.69	3.42	3.73	3.80	3.41	3.31	3.85	3.28	3.31
21	4.58	4.14	3.48	3.64	3.41	3.85	3.65	3.38	3.30	3.56	3.28	3.33
22	4.23	4.10	3.48	3.59	3.47	3.85	3.59	3.39	3.31	3.47	3.31	3.40
23	3.82	3.96	3.46	3.56	3.43	3.91	3.57	3.41	3.26	3.44	3.35	3.29
24	3.66	3.79	3.44	3.54	3.59	3.89	3.75	3.36	3.26	3.37	3.30	3.59
25	3.50	3.66	3.43	3.52	3.71	4.45	3.55	3.45	3.25	3.36	3.30	3.65
26	3.73	3.68	3.39	3.67	3.65	3.81	3.49	3.53	3.33	3.38	3.32	3.70
27	3.46	3.66	3.40	3.69	3.53	3.69	3.45	3.52	3.48	3.38	3.30	3.63
28	3.48	3.97	3.39	3.60	3.37	3.59	3.47	3.47	3.32	3.42	3.34	3.47
29	3.43	....	3.42	3.53	3.33	3.57	3.46	3.38	3.30	3.40	3.52	3.53
30	3.63	....	3.42	3.48	3.37	3.55	3.45	3.38	3.36	3.36	3.41	3.73
31	4.13	....	3.48	....	3.36	....	3.47	4.35	....	3.37	....	3.89
1911												
1	3.57	3.70	3.39	3.44	3.82	3.98	3.24	3.15	3.96	3.15	3.29	3.29
2	3.75	3.63	3.41	3.39	3.64	3.44	3.25	3.15	3.45	3.35	3.29	3.45
3	4.63	3.57	3.40	3.54	3.54	3.35	3.24	3.15	3.31	3.70	3.21	3.52
4	4.37	3.54	3.35	3.86	3.52	3.32	3.29	3.11	3.25	3.35	3.25	3.30
5	3.83	3.55	3.34	5.80	3.52	3.36	3.77	3.30	3.25	3.28	3.25	3.30
6	3.55	3.45	3.51	4.94	3.52	3.59	3.46	3.88	3.25	3.20	3.47	3.52
7	3.85	3.47	3.65	4.19	3.46	3.68	3.39	3.38	3.26	3.16	3.79	3.38
8	3.67	3.43	3.60	4.74	3.48	4.00	4.39	3.32	3.20	3.24	3.48	3.52
9	3.53	4.07	3.63	4.44	3.50	3.56	3.56	3.38	3.20	3.31	3.46	3.30
10	3.55	4.13	4.36	4.04	3.48	3.40	3.46	3.18	3.44	3.31	3.60	3.29
11	3.69	3.77	4.20	3.89	3.45	3.35	3.36	3.08	3.40	3.31	3.42	3.28
12	3.55	3.70	3.87	3.90	3.44	3.36	3.34	3.11	3.32	3.34	3.41	3.29
13	3.49	3.65	3.75	4.19	3.56	3.33	3.30	3.48	3.28	3.21	3.61	3.28
14	3.45	3.55	3.85	4.32	4.02	3.29	3.70	3.38	3.20	3.20	3.46	3.25
15	3.43	3.54	3.80	4.46	3.52	3.28	3.36	3.25	3.21	3.19	3.39	3.34
16	3.37	3.53	3.60	4.42	3.45	3.24	3.26	3.15	3.20	3.18	3.36	4.30
17	3.37	3.49	3.47	4.04	3.44	3.08	3.20	3.14	3.20	3.28	3.35	4.08
18	3.39	3.46	3.59	3.92	3.45	3.19	3.22	3.15	3.20	5.72	3.41	3.80
19	3.45	3.53	3.57	3.89	3.40	3.49	3.20	3.18	3.20	4.10	3.38	3.46
20	3.44	3.65	3.75	4.04	3.39	3.52	3.18	3.16	3.18	3.55	3.38	3.39
21	3.45	3.60	3.53	4.32	3.36	3.38	3.20	3.10	3.22	3.42	3.36	3.42
22	3.63	3.70	3.46	3.74	3.33	3.32	3.19	3.10	3.70	3.38	3.32	3.60
23	4.01	3.56	3.43	3.66	3.42	3.25	3.20	3.08	3.62	3.62	3.31	4.59
24	3.65	3.51	3.37	3.68	3.39	3.28	3.18	3.08	3.29	3.46	3.36	3.99
25	3.53	3.44	3.35	3.64	3.36	3.94	3.16	3.09	3.21	3.38	3.38	4.28
26	3.55	3.40	3.37	3.64	3.28	3.94	3.16	3.30	3.25	3.34	3.32	3.95
27	3.53	3.36	3.63	3.60	3.32	3.56	3.15	3.50	3.21	3.34	3.32	3.88
28	3.53	3.40	3.53	3.59	3.34	3.69	3.14	3.36	3.16	3.28	3.35	3.65
29	3.46	....	3.43	3.66	3.33	3.50	3.16	3.30	3.18	3.25	3.45	3.38
30	4.37	....	3.75	3.79	3.29	3.32	3.15	3.95	3.15	3.22	3.35	3.68
31	3.99	....	3.51	....	3.38	....	3.14	3.98	....	3.22	....	3.75

Daily gage height, in feet, of Little River near Copper Valley, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	3.68	3.52	3.67	4.05	3.70	3.54	4.15	3.58	3.19	3.28	3.26	3.38
2	3.52	3.71	3.48	4.25	3.63	3.58	3.73	3.41	3.17	3.26	3.38	3.34
3	3.51	3.58	3.50	4.2	3.62	3.67	3.55	3.36	3.16	3.25	3.32	3.34
4	3.49	....	3.53	3.93	3.52	3.54	3.55	3.61	3.13	3.25	3.26	3.36
5	3.22	....	3.69	3.83	3.49	3.57	3.89	3.57	3.15	3.28	3.22	3.62
6	3.25	....	3.50	3.82	3.54	3.58	4.2	3.42	3.19	3.25	3.28	3.68
7	3.7	3.60	3.62	3.87	3.54	3.69	3.65	3.37	3.29	3.20	4.75	3.58
8	3.55	....	3.82	4.0	3.50	3.53	3.59	3.36	3.47	3.20	4.2	3.42
9	....	....	4.65	3.80	3.44	3.51	3.52	3.42	3.33	3.20	3.64	3.34
10	....	....	4.15	3.69	3.40	3.48	3.72	3.47	3.25	3.20	3.44	3.31
11	....	....	3.96	3.64	3.56	3.47	3.58	3.41	3.16	3.20	3.42	3.30
12	....	....	4.3	3.66	7.3	3.45	3.72	3.36	3.09	3.18	3.36	3.30
13	3.65	....	4.8	3.68	5.0	3.46	3.61	3.39	3.15	3.20	3.38	3.31
14	....	3.50	4.4	3.68	4.25	3.51	3.77	3.35	3.13	3.35	3.48	3.35
15	....	....	5.8	3.68	4.2	3.65	3.52	3.35	3.26	3.62	3.42	3.52
16	....	....	5.3	3.66	5.4	3.59	3.47	3.33	3.16	3.38	3.32	3.38
17	....	3.42	3.83	3.70	4.95	3.51	3.37	3.32	3.16	3.25	3.31	3.38
18	....	3.62	4.05	3.76	4.3	3.53	3.39	3.25	3.29	3.22	3.30	3.35
19	....	3.61	3.94	3.58	3.99	3.65	4.2	3.31	3.73	3.28	3.29	3.36
20	4.15	3.53	3.87	3.53	3.86	3.58	3.59	3.35	3.53	3.38	3.28	3.36
21	....	3.76	3.88	3.54	3.86	3.55	3.43	3.35	3.22	3.32	3.29	3.36
22	....	5.1	3.81	3.59	3.79	3.66	3.39	3.35	3.19	3.26	3.30	3.32
23	....	3.93	3.78	3.72	3.76	3.65	3.37	3.27	3.69	3.40	3.29	3.32
24	....	3.76	4.25	3.52	3.72	4.15	3.35	3.35	4.65	3.36	3.22	3.42
25	....	4.45	4.35	3.52	3.69	3.61	3.43	3.19	3.89	3.26	3.24	3.54
26	....	4.3	4.1	3.50	3.69	3.72	3.45	3.25	3.54	3.28	3.28	3.50
27	3.54	5.1	3.90	3.70	3.64	3.63	3.47	3.27	3.78	3.24	3.28	3.62
28	3.51	4.1	3.82	3.83	3.64	3.49	3.31	3.25	3.51	3.21	3.29	3.62
29	3.62	3.91	6.3	3.73	3.68	3.46	3.27	3.21	3.40	3.22	3.36	3.62
30	4.3	....	4.6	3.86	3.74	3.46	3.28	3.22	3.32	3.22	3.40	3.65
31	3.90	....	4.2	....	3.60	....	3.31	3.21	....	3.20	....	4.02
1913												
1	3.72	3.58	3.75	3.66	3.48	3.56	3.45	3.21	3.18	3.38	3.41	3.70
2	3.45	3.42	3.54	3.62	3.44	3.52	3.42	3.22	3.19	3.30	3.38	4.25
3	3.90	3.42	3.42	3.59	3.40	3.54	4.6	3.21	3.15	3.30	3.38	3.76
4	3.86	3.45	3.40	3.56	3.41	3.59	3.94	3.18	4.05	3.30	3.36	3.62
5	3.58	3.45	3.39	3.48	3.39	3.58	3.88	3.15	3.88	3.28	3.38	3.56
6	3.52	3.44	3.35	3.42	3.39	3.48	3.48	3.15	3.46	3.25	3.36	3.50
7	3.48	3.32	3.25	3.40	3.41	3.58	3.42	3.18	3.39	3.26	3.34	3.62
8	3.44	3.40	3.28	3.39	3.42	3.64	3.34	3.26	3.31	3.29	3.46	3.68
9	3.39	3.55	3.36	3.40	3.40	3.65	3.32	3.21	3.58	3.50	5.0	3.48
10	3.34	3.60	3.38	3.46	3.41	3.52	3.29	3.35	3.42	3.82	4.1	3.45
11	3.30	3.42	3.75	3.60	3.38	3.48	3.58	3.49	3.30	3.58	3.75	3.58
12	3.32	3.39	3.50	4.65	3.35	3.64	3.80	3.40	3.25	3.62	3.58	3.50
13	3.34	3.32	3.40	4.35	3.34	3.86	3.44	3.42	3.24	3.50	3.68	3.54
14	3.32	3.42	8.1	3.95	3.31	3.52	3.34	3.32	3.21	3.38	3.60	3.54
15	3.30	3.46	5.3	3.78	3.32	3.96	3.39	3.29	3.18	3.32	3.62	3.41
16	3.30	3.48	4.7	3.92	3.66	3.41	3.36	3.28	3.25	3.29	3.55	3.40
17	3.34	3.35	4.05	3.76	3.80	3.40	3.29	3.20	3.29	3.30	3.72	3.38
18	3.32	3.25	3.79	3.71	3.94	3.39	3.30	3.17	3.48	3.30	3.62	3.40
19	3.36	3.24	3.74	3.62	3.46	3.39	3.30	3.65	3.54	3.38	3.55	3.34
20	3.31	3.28	3.75	3.58	3.36	3.35	3.29	3.45	3.54	4.25	3.50	3.34
21	3.30	3.62	3.78	3.50	3.06	3.34	3.30	3.38	7.0	4.15	3.46	3.35
22	3.30	3.56	3.82	3.48	4.05	3.31	3.28	3.32	4.9	3.63	3.44	3.35
23	3.29	3.42	3.64	3.46	6.5	3.75	3.26	3.39	3.75	3.52	3.45	3.38
24	3.31	3.34	3.60	3.45	6.2	3.65	3.25	3.38	3.48	3.50	3.41	3.60
25	3.35	3.30	3.65	3.45	4.5	3.60	3.26	3.24	3.42	4.2	3.40	3.50

Daily gage height, in feet, of Little River near Copper Valley, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
26	3.38	3.30	3.85	3.45	4.0	4.3	3.25	3.20	3.38	3.75	3.38	4.15
27	3.72	3.75	5.5	3.62	3.95	4.0	3.26	3.15	3.34	3.58	3.42	3.64
28	4.4	4.25	4.3	3.55	4.05	3.54	3.25	3.22	3.32	3.46	3.40	3.58
29	3.85	....	3.92	3.51	3.88	4.05	3.25	3.28	3.31	3.40	3.41	3.45
30	3.65	....	3.79	3.52	3.68	3.65	3.28	3.32	3.35	3.41	3.41	3.50
31	3.62	....	3.74	....	3.60	....	3.25	3.30	....	3.40	....	3.49
1914												
1	3.48	4.6	3.78	4.1	3.65	3.39	3.15	3.18	3.25	3.10	3.20	4.45
2	3.46	4.05	3.60	4.1	3.61	3.36	3.56	3.11	3.20	3.11	3.21	4.3
3	3.38	3.90	3.75	3.98	3.59	3.32	3.32	3.40	3.20	3.10	3.21	3.90
4	3.49	3.84	4.15	3.85	3.59	3.30	3.25	3.38	3.20	3.14	3.21	3.76
5	3.72	3.82	3.85	3.81	3.71	3.31	3.28	3.22	3.15	3.49	3.22	7.0
6	3.70	4.35	3.76	3.80	3.76	3.36	3.28	3.20	3.15	3.51	3.22	4.7
7	3.78	4.85	3.74	3.75	3.71	3.39	3.22	3.15	3.15	3.29	3.21	4.3
8	3.82	4.25	3.70	3.85	3.71	3.36	3.41	3.18	3.12	3.74	3.22	4.05
9	3.94	3.98	3.66	3.84	3.64	3.34	3.31	3.11	3.18	3.70	3.24	3.88
10	4.45	3.88	3.59	3.79	3.61	3.58	3.31	3.14	3.24	3.35	3.35	3.86
11	4.1	3.91	3.98	3.75	3.60	3.32	3.40	3.18	3.20	3.26	3.26	3.82
12	3.80	3.84	4.6	3.71	3.58	3.38	3.22	3.28	3.25	3.19	3.21	3.79
13	3.80	3.62	4.2	3.70	3.55	3.40	3.15	3.20	3.29	3.19	3.22	3.78
14	3.81	3.41	4.05	3.71	3.52	3.30	4.35	3.45	3.25	3.22	3.22	3.78
15	3.84	4.35	4.1	4.3	3.50	3.25	3.95	3.25	3.24	3.30	4.3	3.48
16	3.85	4.1	4.1	4.3	3.45	3.24	3.78	3.20	3.21	5.6	4.15	3.48
17	3.81	4.0	4.0	3.96	3.45	3.20	3.60	3.19	3.20	4.05	3.56	3.80
18	3.84	4.05	4.4	3.88	3.48	3.20	3.48	3.14	3.38	3.55	3.38	3.79
19	3.76	4.65	4.2	3.81	3.46	3.21	3.32	3.10	3.42	3.46	3.38	3.81
20	3.88	5.4	4.15	4.05	3.46	3.26	3.21	3.12	3.32	3.39	3.38	4.1
21	4.4	4.7	3.95	4.0	3.45	3.25	3.18	3.19	3.24	3.36	3.40	4.3
22	3.92	4.35	3.98	3.86	3.42	3.24	3.15	3.16	3.20	3.29	3.45	4.35
23	3.68	4.2	3.95	3.79	3.42	3.20	3.12	3.18	3.19	3.29	3.62	4.0
24	3.72	4.05	3.92	3.75	3.41	3.20	3.10	3.16	3.14	3.30	3.55	4.1
25	4.45	4.0	3.86	3.74	3.40	3.16	3.06	3.30	3.15	3.40	3.42	4.0
26	4.0	3.98	3.80	3.71	3.39	3.15	3.10	3.76	3.14	3.38	3.45	4.15
27	3.82	3.90	3.80	3.70	3.38	3.14	3.28	3.80	3.18	3.29	3.44	3.95
28	3.74	3.89	3.81	3.69	3.35	3.30	3.30	5.0	3.11	3.25	3.32	3.98
29	3.68	....	3.81	3.66	3.36	3.22	3.19	4.6	3.11	3.25	3.28	4.05
30	3.68	....	3.88	3.65	3.35	3.15	3.15	3.52	3.10	3.24	3.75	4.4
31	5.1	....	3.98	....	3.38	....	3.11	3.32	....	3.22	....	4.3

NOTE.—Ice present on following dates:

1909: Dec. 10-31; river frozen over Dec. 23; thickness of ice, 0.25 foot Dec. 26.
1910: Jan. 1-25; Feb. 7-17, and Dec. 1-24.
1911: No reports concerning ice.
1912: Jan. 6-29; Feb. 4-16. River reported frozen over Jan. 13 and 20 (ice 5 to 6 inches thick); also Feb. 7 and 14 (ice about 5 inches thick). Gage readings Jan. 7 and 8 are to top of ice.
1913: Feb. 7-9 and 13-15.
1914: Jan. 13-20; Feb. 15-18.

WALKER CREEK AT STAFFORDSVILLE, VA.

Location.—At highway bridge at Staffordsville, 500 feet below mouth of Whitley Creek.

Drainage area.—277 square miles.

Records available.—July 24, 1908, to December 31, 1914.

Gage.—Chain attached to bridge; read twice daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Banks high, rocky, and not likely to overflow. Bed rocky and uneven; control section practically permanent.

Extremes of discharge.—Maximum mean daily gage height: 13.4 feet, March 27, 1913. Minimum stage observed: 2.64 feet at 7 P. M., August 5, 1914.

Winter flow.—Discharge relation probably not affected by ice.

Regulation.—A dam and power plant 300 feet above station may affect normal flow at low water.

Accuracy.—Gage-height record reliable.

Data insufficient for computation of discharge.

Discharge measurements of Walker Creek at Staffordsville, Va., in 1908–1914.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1908			
July 24	O'Neill and Chapman	3.24	113
Aug. 22	W. M. O'Neill	3.02	59
1909			
June 9	H. J. Jackson	5.75	1,480
June 23	do	3.66	256
Dec. 6	A. H. Horton	2.94	72
1910			
Mar. 12	C. T. Bailey	4.10	358
Apr. 29	do	4.30	476
Oct. 18	do	2.96	56.6
1911			
July 16	Horton and Bailey	3.34	136
1912			
Apr. 3	J. G. Mathers	6.41	1,860
Apr. 4	do	5.88	1,460
Sept. 30	C. T. Bailey	3.42	151
1913			
Dec. 9	Peterson and Walters	3.46	165
1914			
Oct. 19	Mathers and Morgan	3.03	75.4
Oct. 19	do	3.03	76.8

Daily gage height, in feet, of Walker Creek at Staffordsville, Va., for 1908–1914.

[J. D. Worley, W. E. Durham, and J. F. Durham, observers.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908							1908						
1	......	3.15	3.2	3.0	4.55	3.55	16	......	3.15	3.2	3.25	3.4	4.25
2	......	3.05	3.1	3.0	4.25	3.78	17	......	3.15	3.15	3.2	3.45	4.2
3	......	3.05	3.1	3.0	3.95	3.88	18	......	3.2	3.1	3.15	3.6	4.05
4	......	3.0	3.1	3.0	3.85	3.75	19	......	3.2	3.1	2.15	4.55	3.92
5	......	3.1	3.15	3.0	3.7	3.75	20	......	3.05	3.05	3.15	4.5	4.35
6	......	3.1	3.75	3.0	3.6	3.75	21	......	3.0	3.0	3.15	4.2	3.75
7	......	3.05	3.7	3.0	3.45	4.2	22	......	3.01	3.0	3.1	3.9	3.8
8	......	3.05	3.5	3.0	3.45	5.55	23	......	3.15	3.0	3.1	3.85	3.85
9	......	3.4	3.4	3.05	3.4	4.75	24	3.22	3.05	3.0	3.9	3.75	3.75
10	......	3.45	3.3	3.95	3.35	4.48	25	3.31	3.15	3.0	4.1	3.7	3.85
11	......	3.3	3.3	4.2	3.35	4.25	26	3.4	3.6	3.05	3.7	3.7	6.3
12	......	3.15	3.3	3.7	3.35	5.3	27	3.25	3.65	3.05	3.55	3.55	5.25
13	......	3.1	3.2	3.5	3.4	5.4	28	3.35	3.45	3.25	3.6	3.48	4.95
14	......	3.0	3.25	3.3	3.45	4.85	29	3.3	3.3	3.15	5.25	3.45	5.25
15	......	3.15	3.2	3.3	3.45	4.48	30	3.25	3.25	3.0	6.5	3.48	5.55
							31	3.2	3.15	......	5.2	......	7.0

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	6.10	3.75	4.30	4.50	6.90	4.20	3.68	3.44	2.88	3.42	3.31	3.02
2	5.35	3.78	4.10	4.35	5.92	3.98	4.02	3.78	2.87	3.38	3.28	3.02
3	5.00	3.80	4.00	4.28	5.22	4.05	3.70	3.48	2.88	3.34	3.25	3.09
4	4.75	3.78	4.20	4.08	4.85	4.92	3.42	3.36	2.83	3.34	3.23	3.09
5	6.82	3.75	4.15	3.98	4.55	5.00	3.36	3.30	3.04	3.30	3.20	3.06
6	6.45	3.75	4.28	3.88	4.32	4.65	3.45	3.28	3.00	3.30	3.21	3.00
7	6.55	....	4.85	3.78	4.10	4.28	4.05	3.31	2.97	3.28	3.25	3.14
8	5.05	3.65	5.50	3.68	4.00	4.12	4.70	3.32	2.91	3.24	3.23	3.37
9	4.80	3.72	5.52	3.64	3.90	5.00	4.27	3.28	3.14	3.20	3.23	3.36
10	4.58	6.12	5.45	3.60	5.32	5.15	3.94	3.22	4.06	3.20	3.29	3.22
11	4.40	5.68	5.22	3.55	5.72	4.52	3.72	3.14	3.75	5.00	3.25	3.22
12	4.30	4.98	4.90	3.45	4.92	4.20	3.62	3.03	3.42	5.92	3.21	3.21
13	4.12	4.72	4.66	3.45	4.52	4.25	3.58	3.05	3.20	4.72	3.23	3.45
14	4.05	4.50	4.55	6.70	4.30	4.50	3.56	3.16	3.14	4.26	3.20	3.26
15	4.08	4.30	4.32	5.72	4.12	4.48	3.49	3.26	3.10	4.21	3.21	4.05
16	4.68	4.38	4.20	5.02	4.02	4.15	3.40	3.46	4.57	4.05	3.17	3.82
17	5.58	4.52	4.08	4.70	3.75	4.80	3.40	3.46	5.44	3.89	3.16	3.64
18	5.38	4.38	3.98	4.42	3.70	4.40	3.33	3.34	7.03	3.79	3.13	3.56
19	5.22	4.38	3.90	4.28	3.65	4.05	3.27	3.23	4.99	3.73	3.11	3.49
20	5.10	4.90	3.70	4.15	3.70	3.88	3.22	3.16	4.32	3.63	3.11	3.30
21	5.05	4.70	3.70	4.15	5.18	3.75	3.20	3.08	4.03	3.63	3.11	3.12
22	4.90	4.60	4.10	4.18	6.02	3.65	3.14	3.04	3.83	3.57	3.12	3.16
23	4.75	4.38	4.35	4.25	5.16	3.58	3.19	3.04	3.70	3.55	3.18	3.16
24	4.62	4.45	4.25	4.18	4.70	3.55	3.32	2.96	5.15	3.56	3.15	3.21
25	4.45	4.75	5.48	4.02	4.42	3.55	3.24	2.93	4.50	3.51	3.11	3.38
26	4.38	4.65	5.72	3.98	5.22	3.48	3.16	2.94	4.12	3.47	3.07	3.24
27	4.25	4.50	5.15	3.92	7.95	3.55	3.14	3.06	3.87	3.41	3.12	3.17
28	4.12	4.35	5.60	3.90	5.70	3.45	3.20	2.92	3.72	3.32	3.09	3.26
29	4.05	....	5.65	3.78	5.10	3.68	3.26	3.10	3.60	3.33	3.07	3.14
30	4.05	....	5.12	4.90	4.75	3.75	3.22	2.92	3.52	3.31	3.07	2.96
31	3.72	....	4.78	....	4.45	....	3.15	2.89	....	3.31	....	3.07
1910												
1	3.18	3.64	4.62	3.30	4.02	3.36	3.44	3.08	3.08	2.94	2.92	3.06
2	3.29	3.68	4.84	3.31	3.87	3.33	3.38	3.08	3.12	2.93	2.99	2.94
3	3.66	3.86	4.66	3.37	3.76	3.27	3.39	3.02	3.40	2.92	2.92	2.90
4	3.81	4.28	4.46	3.50	3.74	3.26	3.46	3.15	3.40	2.90	2.96	2.99
5	3.60	4.25	4.37	3.52	3.70	3.41	3.54	3.16	3.36	2.92	2.92	3.02

Daily gage height, in feet, of Walker Creek at Staffordsville, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	3.68	4.14	3.51	3.42	3.60	4.00	3.56	3.10	3.22	2.86	2.86	3.14
7	5.65	3.70	4.94	3.34	3.61	3.99	3.64	3.12	3.16	2.92	2.85	3.39
8	5.08	3.95	4.65	3.30	3.78	3.73	3.86	3.11	3.04	3.04	2.86	3.22
9	4.46	3.90	4.54	3.30	3.79	3.62	3.58	3.16	3.04	3.16	2.95	3.13
10	4.06	3.81	4.36	3.30	3.77	3.82	3.51	3.10	3.00	3.12	2.90	3.10
11	3.86	3.71	4.17	3.24	3.70	5.34	3.40	3.00	2.99	3.03	2.88	3.10
12	3.92	3.52	4.06	3.36	3.68	5.50	3.70	3.00	3.00	3.00	2.94	3.05
13	3.78	3.74	3.96	5.00	3.68	8.25	3.74	2.92	3.01	2.95	2.90	2.98
14	3.70	3.61	3.86	4.54	3.64	7.71	3.60	2.90	2.99	2.94	2.82	2.89
15	3.65	3.72	3.82	4.20	3.59	6.42	3.50	2.91	2.96	2.88	2.90	2.96
16	3.52	3.92	3.74	4.03	3.55	5.77	3.42	2.92	3.00	2.90	2.91	2.99
17	3.56	5.28	3.72	4.19	3.52	5.82	3.54	2.90	2.92	2.84	2.94	2.90
18	3.61	6.52	3.63	4.64	3.54	5.30	3.76	2.88	2.86	2.88	2.94	3.02
19	3.98	5.30	3.62	4.52	3.61	4.80	3.70	2.80	2.92	2.90	2.88	3.05
20	4.03	4.82	3.60	4.35	3.59	4.62	3.64	2.86	2.96	2.98	2.91	3.05
21	6.08	4.66	3.60	4.21	3.60	4.42	3.46	3.01	2.95	2.97	2.86	2.91
22	6.15	4.56	3.56	4.08	3.57	4.27	3.38	2.96	2.84	3.00	2.89	2.90
23	5.10	4.31	3.51	3.99	3.50	4.04	3.32	2.94	2.72	2.97	2.92	3.14
24	4.62	4.16	3.48	4.03	3.48	3.93	3.26	2.89	2.92	2.89	2.83	3.29
25	4.36	4.04	3.46	4.04	3.74	3.86	3.24	2.89	2.85	2.96	2.87	3.41
26	4.16	4.00	3.40	4.28	3.82	3.78	3.20	2.98	2.90	2.98	2.90	3.36
27	4.05	3.94	3.36	4.32	3.74	3.68	3.18	3.00	2.94	2.97	2.97	3.34
28	3.98	3.97	3.39	4.32	3.60	3.62	3.14	3.06	2.95	2.94	3.00	3.31
29	4.00	....	3.40	4.22	3.50	3.56	3.14	3.02	2.90	2.96	3.05	3.32
30	3.76	....	3.38	4.14	3.50	3.51	3.11	3.00	2.99	2.90	3.10	3.60
31	3.92	....	3.34	....	3.46	....	3.10	3.12	....	2.93	....	3.80
1911												
1	3.90	4.98	3.51	4.16	3.90	3.54	3.22	2.90	3.54	2.80	3.30	3.24
2	5.76	4.60	3.52	4.06	3.84	3.42	3.13	2.86	3.38	3.06	3.22	3.24
3	6.62	4.36	3.48	4.14	3.72	3.28	3.07	2.88	3.22	4.27	3.20	3.26
4	5.82	4.18	3.44	5.65	3.68	3.19	3.22	2.89	3.10	3.72	3.20	3.21
5	4.70	4.05	3.40	6.24	3.60	3.24	3.26	3.19	3.02	3.43	3.20	3.20
6	4.26	3.90	3.92	6.10	3.60	3.16	3.22	3.17	3.10	3.28	3.35	3.15
7	3.95	3.84	5.38	5.52	3.54	3.16	3.20	3.02	3.08	3.20	3.92	3.18
8	3.92	3.94	4.95	5.70	3.54	3.18	3.56	3.10	3.06	3.20	3.86	3.16
9	3.70	5.62	5.30	5.85	3.55	3.20	3.22	2.98	3.00	3.18	3.94	3.16
10	3.52	6.35	6.90	5.46	3.53	3.12	3.12	2.94	2.96	3.26	4.06	3.17
11	3.46	5.22	6.38	5.07	3.50	3.05	3.34	2.88	3.00	3.56	3.93	3.19
12	3.49	4.76	5.36	4.90	3.50	3.04	3.30	2.88	3.02	3.57	3.82	3.13
13	3.40	4.42	5.05	4.82	3.44	3.00	3.38	3.12	3.07	3.44	3.82	3.18
14	3.42	4.28	5.37	5.06	3.42	3.00	3.48	3.52	2.99	3.32	3.80	3.14
15	3.38	4.10	5.07	5.45	3.40	3.00	3.48	3.20	2.96	3.24	3.78	3.18
16	3.30	3.95	4.71	5.62	3.36	2.98	3.30	3.08	2.98	3.20	3.70	3.32
17	3.32	3.82	4.42	5.22	3.34	2.94	3.24	2.95	2.94	3.98	3.65	3.42
18	3.34	3.74	4.26	4.85	3.32	3.03	3.14	2.94	2.96	7.95	3.59	3.40
19	3.30	3.74	4.22	4.64	3.32	3.10	3.10	2.92	2.95	5.44	3.68	3.32
20	3.26	3.88	4.30	4.76	3.30	3.58	3.04	2.85	2.93	4.52	3.64	3.30
21	3.32	3.98	4.21	4.80	3.25	3.68	3.00	2.90	2.90	4.12	3.61	3.30
22	3.56	3.82	4.08	4.70	3.26	3.28	3.06	2.85	2.96	3.94	3.58	3.45
23	4.90	3.88	4.01	4.50	3.22	3.18	2.95	2.78	3.10	3.90	3.51	5.92
24	4.46	3.77	3.90	4.30	3.22	3.19	2.90	2.84	3.10	3.76	3.50	4.96
25	4.15	3.72	3.81	4.16	3.20	3.16	2.84	2.86	2.99	3.61	3.46	5.01
26	4.02	3.68	3.74	4.04	3.16	3.26	2.84	2.90	2.94	3.55	3.42	4.73
27	4.00	3.63	4.73	3.94	3.16	3.19	2.82	2.87	2.92	3.50	3.40	4.70
28	3.93	3.58	4.73	3.89	3.18	3.27	2.82	3.26	2.88	3.47	3.39	4.48
29	3.92	....	4.50	3.84	3.13	3.60	2.92	3.08	2.90	3.40	3.30	4.25
30	6.06	....	4.48	3.84	3.09	3.36	2.82	3.20	2.91	3.36	3.29	4.10
31	5.75	....	4.31	....	3.14	....	2.78	3.56	....	3.33	....	4.11

Daily gage height, in feet, of Walker Creek at Staffordsville, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	4.05	4.5	4.4	5.3	4.9	3.49	4.7	3.52	3.16	3.49	3.04	3.14
2	3.98	4.35	4.15	6.4	4.65	3.47	4.6	3.50	3.12	3.42	3.04	3.16
3	4.0	3.88	4.15	6.8	4.4	3.43	4.25	3.35	3.18	3.34	2.99	3.16
4	3.94	3.94	4.05	5.7	4.25	3.41	4.25	3.34	3.15	3.32	3.05	3.22
5	3.60	3.64	3.98	5.3	4.1	3.44	5.1	3.30	3.04	3.26	3.02	3.35
6	3.37	2.78	4.0	4.95	4.05	3.40	5.3	3.28	3.02	3.23	3.04	3.50
7	3.62	3.63	4.05	4.75	4.05	3.33	4.6	3.26	2.94	3.20	3.82	3.66
8	3.52	3.73	4.7	4.55	4.05	3.29	4.2	3.18	....	3.16	4.9	3.61
9	3.59	3.65	5.7	4.35	3.90	3.27	4.0	3.20	3.44	3.14	4.25	3.54
10	3.54	3.44	5.4	4.25	3.79	3.21	4.2	3.24	3.26	3.14	3.93	3.46
11	3.48	3.48	4.95	4.15	3.79	3.19	5.2	3.26	3.08	3.10	3.72	3.42
12	3.50	3.44	5.0	4.05	5.2	3.17	4.45	3.22	3.05	3.08	3.58	3.36
13	3.40	3.44	7.9	3.99	5.55	3.17	4.35	3.18	3.01	3.11	3.50	3.08
14	3.27	3.42	6.9	3.97	4.75	3.17	4.0	3.18	3.00	3.12	3.50	3.20
15	3.38	3.46	8.8	3.91	4.65	3.19	3.87	3.21	3.01	3.22	3.44	3.20
16	3.27	3.44	7.7	3.91	7.1	3.19	3.71	3.17	3.00	3.24	3.32	3.27
17	3.30	3.47	6.2	3.94	6.5	3.20	3.58	3.15	3.06	3.14	3.30	3.24
18	3.36	3.53	5.6	3.92	5.4	3.23	3.52	3.10	3.15	3.10	3.26	3.24
19	3.61	3.60	5.2	3.89	4.95	3.39	3.54	3.51	3.61	3.18	3.22	3.22
20	4.55	3.73	4.9	3.87	4.6	3.30	3.47	3.30	3.36	3.20	3.21	3.20
21	4.4	4.8	4.7	3.85	4.4	3.26	3.43	3.31	3.21	3.22	3.19	3.14
22	4.2	6.6	4.5	3.85	4.25	3.15	3.40	3.38	3.12	3.21	3.20	3.14
23	4.05	5.2	4.35	4.0	4.05	3.15	3.43	3.34	4.7	3.16	3.18	3.04
24	3.97	4.75	4.55	3.91	3.93	3.18	3.39	3.44	5.8	3.15	3.16	3.11
25	3.91	4.85	5.3	3.87	3.87	4.5	3.46	3.32	4.95	3.13	3.15	3.02
26	3.86	4.95	5.1	3.85	3.89	4.35	3.60	3.26	4.25	3.08	3.11	3.00
27	4.3	6.1	4.8	4.75	3.75	5.0	3.40	3.30	4.7	3.05	3.12	3.29
28	4.3	5.1	4.6	5.7	3.69	6.2	3.32	3.32	4.0	3.06	3.14	3.08
29	4.25	4.7	9.2	5.2	3.67	5.9	3.23	3.23	3.76	3.02	3.08	3.20
30	5.6	....	6.8	5.2	3.65	4.8	3.24	3.20	3.62	3.06	3.08	3.66
31	5.0	....	5.8	....	3.57	....	3.37	3.22	....	3.05	....	5.20
1913												
1	4.5	4.45	5.0	4.8	3.62	4.85	3.38	3.01	3.03	2.96	3.06	3.30
2	4.1	4.3	4.7	4.55	3.58	4.4	3.42	3.28	2.95	2.93	3.02	4.1
3	4.15	4.3	4.25	4.35	3.55	4.2	3.41	3.02	2.92	2.97	3.00	3.95
4	4.3	4.4	4.1	4.25	3.50	4.25	4.05	2.95	2.94	2.94	2.99	3.68
5	4.15	4.3	4.0	4.1	3.50	4.1	5.4	2.91	2.94	2.87	2.96	3.58
6	4.05	4.25	3.94	3.99	3.44	3.90	4.2	2.90	2.95	2.85	2.91	3.55
7	4.05	4.0	3.75	3.83	3.50	3.80	3.75	2.96	2.92	2.86	2.91	3.50
8	4.05	3.80	3.74	3.84	3.48	4.25	3.52	3.01	2.92	2.86	3.02	3.58
9	4.0	3.78	3.70	3.79	3.44	4.25	3.42	3.02	2.89	2.90	4.1	3.47
10	3.95	4.8	3.76	3.76	3.40	4.05	3.34	3.03	2.86	2.88	3.86	3.42
11	3.90	3.80	3.86	3.85	3.34	3.85	3.32	2.96	2.87	2.91	3.65	3.42
12	3.94	3.81	3.88	4.7	3.30	3.89	3.65	3.05	2.82	2.82	3.43	3.36
13	4.6	3.65	3.89	7.8	3.32	3.90	3.64	3.30	2.85	2.80	3.38	3.30
14	4.35	3.56	6.6	6.2	3.32	3.74	3.36	3.32	2.80	2.82	3.34	3.24
15	4.1	3.61	7.6	5.5	3.32	3.61	3.40	3.16	2.78	2.82	3.40	3.22
16	3.98	3.68	6.8	5.2	3.38	3.50	3.32	3.04	2.82	2.76	3.44	3.20
17	3.88	3.66	5.5	5.0	3.46	3.46	3.28	2.97	2.86	2.85	3.47	3.21
18	3.82	3.58	4.95	4.75	3.47	3.57	3.22	2.98	2.90	2.88	3.70	3.18
19	3.74	3.50	4.65	4.55	3.39	3.54	3.20	3.02	2.98	2.91	3.62	3.14
20	3.68	3.52	4.5	4.35	3.32	3.44	3.14	4.0	3.02	3.45	3.49	3.16
21	3.60	3.59	4.35	4.2	3.99	3.38	3.18	3.32	3.14	3.45	3.40	3.11
22	3.62	3.59	4.3	4.05	3.84	3.32	3.11	3.20	3.50	3.22	3.30	3.10
23	3.60	3.50	4.05	4.0	5.6	3.64	3.08	3.16	3.33	3.08	3.28	3.11
24	3.65	3.56	4.0	3.90	7.2	3.98	3.09	3.17	3.15	3.15	3.20	3.14
25	3.76	3.58	3.99	3.83	5.5	3.93	3.12	3.06	3.04	3.62	3.14	3.23

Daily gage height, in feet, of Walker Creek at Staffordsville, Va., for 1908–1914—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
26	3.83	3.53	4.3	3.80	4.8	3.70	3.02	3.00	2.99	3.60	3.12	3.74
27	4.6	4.35	13.4	3.85	5.6	3.72	3.01	2.94	2.94	3.46	3.12	3.72
28	5.9	5.6	7.8	3.81	6.1	3.82	3.02	2.92	2.88	3.34	3.14	3.64
29	5.1	....	6.1	3.80	5.2	3.58	3.08	2.92	2.90	3.25	3.10	3.62
30	4.7	....	5.5	3.74	4.8	3.46	3.02	2.98	2.95	3.11	3.10	3.60
31	4.5	....	5.2	....	5.6	....	3.04	3.15	....	3.08	....	3.64
1914												
1	3.72	5.7	4.55	6.4	3.67	3.00	2.77	2.70	3.02	2.72	2.70	4.45
2	3.66	4.9	4.3	6.2	3.62	3.04	2.85	2.68	2.91	2.77	2.70	5.0
3	3.58	4.55	4.3	5.6	3.59	2.98	2.83	2.66	2.88	2.70	2.72	5.0
4	3.50	4.35	4.25	5.1	3.60	2.94	2.79	2.68	2.82	2.78	2.71	4.65
5	3.86	4.3	4.25	4.8	3.66	2.95	2.84	2.67	2.80	2.78	2.69	8.6
6	3.77	4.65	4.3	4.55	3.70	3.00	2.80	2.66	2.79	2.84	2.68	5.9
7	3.76	6.6	4.25	4.4	3.66	3.00	2.80	2.67	2.78	2.80	2.68	5.1
8	3.78	5.9	4.2	4.4	3.60	3.02	2.76	2.75	2.82	2.94	2.71	4.6
9	4.25	5.1	4.1	4.3	3.60	3.00	2.88	2.75	2.73	2.82	2.68	4.3
10	6.0	4.75	3.90	4.15	3.54	3.00	2.82	2.81	2.78	2.81	2.71	4.0
11	5.2	4.6	5.4	4.1	3.48	2.91	2.75	2.75	2.80	2.82	2.70	3.84
12	4.75	4.35	6.5	4.05	3.44	2.94	2.85	2.82	2.84	2.74	2.67	3.70
13	4.0	4.15	5.6	3.96	3.40	2.95	2.86	2.83	2.91	2.76	2.74	3.65
14	3.99	4.0	5.2	3.90	3.38	3.02	3.15	2.85	2.88	2.95	2.70	3.62
15	4.1	4.1	5.2	4.3	3.33	2.94	3.32	2.83	2.82	2.82	2.95	3.18
16	4.0	3.96	5.4	5.3	3.32	2.88	3.15	2.76	2.82	3.86	3.35	3.28
17	4.1	3.72	5.7	5.0	3.30	2.86	3.00	2.72	2.78	3.70	3.22	3.30
18	4.1	4.05	5.7	4.65	3.24	2.84	2.94	2.75	2.78	3.35	3.05	3.27
19	3.98	5.4	5.2	4.45	3.22	2.85	2.93	2.71	2.82	3.13	2.96	3.38
20	4.15	7.2	4.9	4.85	3.22	2.84	2.85	2.72	2.80	2.96	2.92	3.78
21	5.8	6.1	4.45	5.0	3.20	2.91	2.80	2.72	2.76	2.93	2.78	4.8
22	5.2	5.5	4.45	4.75	3.18	2.96	2.76	2.72	2.78	2.86	2.86	5.5
23	4.6	5.45	4.5	4.5	3.17	2.94	2.73	2.75	2.78	2.84	2.84	4.8
24	4.4	5.2	4.5	4.35	3.16	2.85	2.74	2.72	2.80	2.83	2.84	4.4
25	5.4	4.75	4.5	4.25	3.11	2.93	2.73	2.95	2.82	2.86	2.78	....
26	4.95	4.65	4.55	4.15	3.10	2.90	2.72	3.05	2.80	2.80	2.82	....
27	4.65	4.55	4.6	3.99	3.10	2.75	2.71	3.38	2.82	2.79	2.81	....
28	4.3	4.55	4.5	3.93	3.10	2.80	2.70	3.88	2.80	2.76	2.82	3.80
29	4.15	....	4.4	3.84	3.05	2.75	2.71	3.66	2.79	2.79	2.85	4.15
30	4.05	....	4.7	3.75	3.04	2.74	2.75	3.36	2.80	2.77	3.18	5.5
31	4.5	....	5.8	....	3.02	....	2.72	3.13	....	2.74	....	5.3

NOTE.—No reports regarding ice in stream have been made by the observer. It is probable that the discharge relation was not affected by ice.

WOLF CREEK NEAR NARROWS, VA.

Location.—At highway bridge 1,500 feet below the New River, Holston & Western Railroad bridge, 2½ miles above mouth of Mill Creek, and 3 miles above Narrows.

Drainage area.—223 square miles.

Records available.—July 22, 1908, to December 31, 1914.

Gage.—Chain attached to bridge; read twice daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Right bank high, rocky, and not likely to overflow; left bank may overflow at extreme stages. Bed of stream is clean and broken by limestone ledges. Control section practically permanent.

Extremes of stage.—Maximum mean daily gage height: 10.2 feet, March 27, 1913; highest water, date unknown, approximately 15.5 feet on present gage. Minimum stage observed: 2.18 feet, August 21-22, 1914.

Winter flow.—Discharge relation probably not affected by ice.

Accuracy.—Gage-height record reliable.

Data insufficient for computation of discharge.

Discharge measurements of Wolf Creek near Narrows, Va., in 1908–1914.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1908				1911			
July 22	O'Neill and Chapman	2.72	92	July 15	Horton and Bailey	2.69	71
Aug. 24	W. M. O'Neill	2.66	64	1912			
				Sept. 19	C. T. Bailey	2.76	88
1909				1913			
June 8	H. J. Jackson	3.33	230	Dec. 8	Walters and Peterson	3.10	159
June 24	do	3.12	160				
1910				1914			
Mar. 11	C. T. Bailey	3.71	345	Oct. 24	Mathers and Morgan	2.52	51.9
Mar. 21	do	3.22	194	Oct. 24	do	2.53	50.9
Apr. 28	do	4.00	508				
Oct. 18	do	2.42	36.3				

Daily gage height, in feet, of Wolf Creek near Narrows, Va., for 1908–1914.

[John A. Hale, observer.]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908							1908						
1	......	2.64	2.64	2.58	3.84	3.09	16	......	2.56	2.66	2.63	2.99	3.76
2	......	2.62	2.64	2.57	3.54	3.60	17	......	2.54	2.64	2.60	3.02	3.62
3	......	2.58	2.59	2.56	3.38	3.47	18	......	2.55	2.62	2.59	3.15	3.52
4	......	2.56	2.54	2.51	3.28	3.38	19	......	2.62	2.59	2.58	3.70	3.59
5	......	2.56	2.63	2.50	3.18	3.32	20	......	2.60	2.59	2.56	3.62	3.50
6	......	2.62	4.35	2.47	3.09	3.32	21	......	2.58	2.58	2.57	3.50	3.41
7	......	2.62	3.45	2.48	3.04	3.87	22	2.72	2.60	2.56	2.56	3.38	3.42
8	......	2.60	3.19	2.49	3.99	4.72	23	2.72	2.63	2.57	2.58	3.32	3.46
9	......	2.89	3.04	2.52	2.94	4.18	24	2.72	2.62	2.56	3.02	3.23	3.37
10	......	2.98	2.92	2.72	2.91	3.88	25	2.72	2.64	2.54	3.24	3.14	3.50
11	......	2.82	2.85	3.28	2.94	3.65	26	2.68	2.99	2.52	2.96	3.06	5.37
12	......	2.72	2.82	2.95	3.01	5.12	27	2.64	3.12	2.51	2.84	3.00	4.53
13	......	2.66	2.81	2.82	3.02	4.84	28	2.74	2.90	2.55	2.82	2.94	4.35
14	......	2.59	2.72	2.72	3.00	4.30	29	2.82	2.77	2.54	3.84	2.98	4.79
15	......	2.57	2.74	2.66	3.04	4.01	30	2.74	2.71	2.58	5.09	3.00	5.01
							31	2.71	2.73	......	4.32	......	6.52

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	5.38	3.28	3.88	4.14	7.32	3.55	3.22	3.18	2.64	2.72	2.70	2.60
2	4.69	3.34	3.84	3.98	5.82	3.42	3.14	3.28	2.62	2.69	2.70	2.58
3	4.34	3.28	3.80	3.88	4.99	3.39	3.07	3.18	2.60	2.69	2.70	2.58
4	4.11	3.25	4.10	3.78	4.52	3.71	2.98	3.08	2.65	2.66	2.68	2.57
5	4.66	3.28	4.00	3.65	4.25	3.76	2.92	3.01	2.82	2.64	2.68	2.56
6	4.88	3.42	4.04	3.54	4.03	3.67	3.00	2.94	2.72	2.64	2.66	2.56
7	4.41	3.48	4.76	3.50	3.84	3.51	4.04	3.42	2.70	2.59	2.66	2.62
8	4.14	3.44	4.99	3.44	3.70	3.38	4.32	3.44	2.72	2.62	2.66	2.92
9	3.94	3.46	5.05	3.37	3.65	4.20	3.85	3.16	2.80	2.62	2.66	2.95
10	3.82	5.14	5.33	3.34	4.90	3.81	3.62	3.02	3.59	2.60	2.72	2.70
11	3.69	4.88	5.10	3.29	5.00	3.64	3.39	2.94	3.15	3.17	2.66	2.84
12	3.62	4.35	4.68	3.24	4.49	3.51	3.26	2.88	2.95	3.60	2.66	2.78
13	3.50	4.11	4.40	3.44	4.19	3.61	3.21	2.86	2.82	3.16	2.65	2.85
14	3.42	3.94	4.29	4.44	3.96	4.10	3.40	2.93	2.76	2.98	2.66	3.54
15	3.52	3.78	4.10	4.08	3.82	3.64	3.20	3.26	2.70	2.98	2.64	3.32
16	4.25	4.19	4.00	3.84	3.68	3.74	3.10	3.35	3.40	3.05	2.60	3.24
17	5.08	4.38	3.89	3.71	3.57	4.08	3.15	3.58	3.80	3.00	2.64	3.04
18	4.66	4.14	3.74	3.60	3.46	3.72	3.04	3.60	3.50	2.90	2.62	3.00
19	4.54	4.02	3.66	3.52	3.39	3.48	2.96	3.32	3.25	2.88	2.62	2.96
20	4.44	4.20	3.58	3.50	3.36	3.34	2.92	3.16	3.08	2.86	2.61	2.84
21	4.32	4.08	3.80	3.58	3.70	3.24	2.87	3.06	3.00	2.84	2.61	2.80
22	4.18	4.03	4.26	3.65	4.09	3.18	2.84	2.95	2.94	2.80	2.61	2.83
23	4.05	4.02	4.10	3.88	3.88	3.14	2.84	2.88	2.84	2.78	2.58	2.76
24	3.98	4.10	3.99	3.82	3.69	3.12	3.12	2.79	3.05	2.82	2.68	2.73
25	3.86	4.46	5.02	3.72	3.58	3.16	2.92	2.76	3.01	2.81	2.64	2.80
26	3.76	4.38	5.24	3.68	3.83	3.08	2.84	2.76	2.88	2.78	2.62	2.80
27	3.72	4.26	4.75	3.60	4.94	3.04	2.83	2.72	2.82	2.76	2.60	2.76
28	3.66	4.08	5.44	3.59	4.47	3.08	2.86	2.72	2.78	2.76	2.60	2.82
29	3.59	....	5.34	3.48	4.13	3.22	2.92	2.72	2.76	2.74	2.60	2.74
30	3.54	....	4.84	4.46	3.88	3.24	2.84	2.70	2.73	2.73	2.58	2.70
31	3.28	....	4.44	....	3.71	....	2.89	2.66	....	2.71	....	2.76
1910												
1	2.74	3.38	4.06	2.96	3.66	3.25	3.19	2.75	2.64	2.55	2.47	2.78
2	2.85	3.18	4.14	2.94	3.53	3.18	3.11	2.71	2.70	2.53	2.47	2.66
3	3.70	3.52	4.06	3.00	3.46	3.12	3.12	2.72	2.78	2.51	2.46	2.64
4	3.65	4.06	3.92	3.12	3.48	3.06	3.06	2.71	2.80	2.51	2.46	2.71
5	3.46	3.92	3.80	3.16	3.42	3.36	3.11	2.98	2.70	2.47	2.44	2.71

Daily gage height, in feet, of Wolf Creek near Narrows, Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910												
6	3.36	3.80	3.95	3.08	3.35	4.40	3.38	2.86	2.72	2.45	2.44	2.98
7	5.05	3.44	4.14	3.04	3.32	4.08	3.32	2.76	2.73	2.55	2.44	3.32
8	4.35	3.54	4.02	3.02	3.50	3.81	3.32	2.76	2.67	2.63	2.43	2.98
9	3.86	3.49	3.86	2.98	3.46	3.61	3.35	2.94	2.69	2.63	2.43	2.92
10	3.59	3.56	3.74	2.96	3.48	3.62	3.21	2.76	2.70	2.59	2.42	2.89
11	3.40	3.42	3.71	2.92	3.44	3.90	3.18	2.74	2.73	2.55	2.44	2.90
12	3.34	3.31	3.62	2.96	3.42	4.42	3.14	2.70	2.73	2.51	2.44	2.88
13	3.30	3.34	3.58	3.38	3.56	5.08	3.03	2.68	2.71	2.50	2.44	2.87
14	3.28	3.28	3.54	3.62	3.54	5.35	3.10	2.66	2.63	2.47	2.44	2.72
15	3.21	3.33	3.48	3.50	3.48	4.75	3.04	2.64	2.59	2.47	2.42	2.74
16	3.12	3.52	3.40	3.42	3.40	4.62	3.00	2.64	2.60	2.48	2.46	2.76
17	3.12	4.38	3.32	3.52	3.36	5.40	3.03	2.66	2.56	2.48	2.45	2.66
18	3.35	4.98	3.30	3.82	3.43	4.75	3.42	2.60	2.51	2.43	2.44	2.60
19	4.36	4.40	3.28	3.74	3.46	4.28	3.50	2.65	2.54	2.44	2.44	2.76
20	4.02	4.10	3.26	3.72	3.38	4.06	3.32	2.67	2.53	2.50	2.46	2.80
21	5.35	3.96	3.26	3.68	3.36	3.88	3.18	2.66	2.53	2.48	2.48	2.66
22	5.20	3.90	3.22	3.80	3.30	4.22	3.07	2.60	2.51	2.54	2.46	2.60
23	4.45	3.78	3.18	3.75	3.24	4.25	3.00	2.60	2.51	2.54	2.45	2.78
24	4.04	3.68	3.11	4.04	3.20	3.94	3.02	2.58	2.50	2.54	2.44	3.14
25	3.83	3.56	3.08	4.22	4.04	3.98	2.90	2.58	2.49	2.50	2.46	3.42
26	3.72	3.48	3.06	4.20	4.20	3.83	2.85	2.63	2.55	2.52	2.44	3.22
27	3.62	3.42	3.05	4.10	3.81	3.62	2.81	2.62	2.53	2.47	2.48	3.12
28	3.66	3.44	3.02	4.02	3.64	3.48	2.80	2.62	2.57	2.44	2.60	3.06
29	3.62	....	3.01	3.90	3.49	3.36	2.78	2.62	2.63	2.46	3.18	3.02
30	3.44	....	3.00	3.78	3.42	3.28	2.76	2.60	2.57	2.52	3.00	3.70
31	3.52	....	2.98	....	3.28	....	2.80	2.60	....	2.49	....	4.10
1911												
1	3.78	4.65	3.19	3.69	3.48	2.88	2.74	2.44	2.64	2.48	2.89	3.04
2	5.40	4.28	3.17	3.63	3.40	2.84	2.62	2.45	2.62	3.18	2.84	3.02
3	5.58	4.02	3.13	3.68	3.31	2.75	2.62	2.45	2.56	4.86	2.80	3.00
4	5.05	4.94	3.08	5.14	3.25	2.70	2.68	2.48	2.52	3.72	2.79	3.00
5	4.26	3.83	3.03	5.67	3.22	2.70	2.69	2.64	2.54	3.36	2.78	2.94
6	3.92	3.68	3.79	5.60	3.20	2.70	2.65	2.66	2.59	3.08	2.86	2.90
7	3.62	3.60	4.96	5.02	3.18	2.72	2.62	2.54	2.63	3.04	3.29	2.90
8	3.52	3.76	4.86	5.00	3.15	2.69	2.64	2.58	2.63	3.03	3.28	2.88
9	3.41	5.35	4.70	5.10	3.13	2.64	2.68	2.56	2.58	3.00	3.22	2.86
10	3.28	5.90	6.52	4.86	3.12	2.62	2.92	2.50	2.52	2.96	3.20	2.81
11	3.15	4.95	5.30	4.48	3.09	2.60	2.86	2.46	2.51	3.34	3.18	2.80
12	3.10	4.40	4.66	4.31	3.06	2.60	2.83	2.44	2.66	3.38	3.16	2.80
13	3.09	4.04	4.32	4.15	3.01	2.60	2.86	2.60	2.68	3.22	3.38	2.79
14	3.04	3.88	4.32	4.02	3.00	2.60	2.75	2.79	2.60	3.12	3.37	2.80
15	3.01	3.70	4.10	4.30	2.98	2.56	2.71	2.64	2.56	3.03	3.34	2.80
16	2.95	3.56	3.95	4.61	2.96	2.59	2.66	2.58	2.54	3.00	3.26	2.86
17	2.95	3.42	3.80	4.40	2.93	2.58	2.62	2.54	2.61	3.12	3.18	2.92
18	2.99	3.36	3.71	4.16	2.92	2.61	2.59	2.56	2.60	6.88	3.32	2.91
19	2.96	3.37	3.65	4.03	2.91	2.66	2.56	2.66	2.56	4.68	3.82	2.87
20	2.94	3.60	3.82	4.28	2.89	3.16	2.51	2.55	2.54	4.06	3.66	2.84
21	2.99	3.63	3.75	4.53	2.86	2.81	2.53	2.54	2.54	3.72	3.52	2.84
22	3.31	3.51	3.72	4.39	2.82	2.70	2.51	2.50	2.60	3.51	3.38	2.92
23	3.78	3.52	3.72	4.16	2.80	2.62	2.50	2.44	2.97	3.46	3.28	4.68
24	3.70	3.42	3.54	3.95	2.83	2.58	2.48	2.45	2.78	3.33	3.20	4.19
25	3.56	3.38	3.44	3.80	2.79	2.74	2.47	2.44	2.68	3.22	3.28	4.32
26	3.49	3.34	3.41	3.68	2.74	2.72	2.46	2.50	2.62	3.13	3.20	4.16
27	3.60	3.29	3.98	3.59	2.76	2.66	2.46	2.48	2.59	3.08	3.16	4.19
28	3.62	3.23	3.98	3.49	2.71	3.16	2.45	2.54	2.58	3.04	3.18	4.04
29	3.68	....	3.92	3.43	2.69	3.06	2.44	2.50	2.54	2.99	3.16	3.82
30	5.85	....	3.87	3.41	2.64	2.85	2.46	2.58	2.51	2.96	3.12	3.71
31	5.40	....	3.76	....	2.70	....	2.46	2.64	....	2.92	....	3.72

Daily gage height, in feet, of Wolf Creek near Narrows, Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912												
1	3.65	4.35	3.95	4.7	4.6	2.99	4.4	3.24	3.01	2.82	2.68	2.75
2	3.6	4.05	3.7	6.1	4.3	2.95	4.05	3.16	2.94	2.73	2.68	2.70
3	3.55	3.7	3.7	6.8	4.1	2.94	3.7	3.06	2.88	2.69	2.68	2.69
4	3.49	3.6	3.55	5.4	3.9	2.92	3.8	3.06	2.88	2.68	2.66	2.80
5	3.27	3.42	3.55	4.8	3.75	2.96	5.0	3.00	2.84	2.66	2.61	3.02
6	3.24	3.40	3.5	4.4	3.65	2.90	4.7	2.93	2.80	2.64	2.62	3.25
7	3.28	3.30	3.45	4.25	3.7	2.86	4.0	2.86	2.83	2.64	2.98	3.36
8	3.12	3.35	3.85	4.1	3.6	2.82	3.8	2.83	2.81	2.61	3.75	3.31
9	3.16	3.22	5.2	3.9	3.5	2.78	3.7	2.84	2.76	2.60	3.45	3.20
10	3.09	3.18	5.0	3.8	3.42	2.76	3.7	2.82	2.71	2.60	3.24	3.11
11	3.10	3.14	4.5	3.7	3.38	2.73	3.55	2.84	2.68	2.74	3.12	3.06
12	3.12	3.04	4.6	3.6	3.7	2.71	3.55	2.80	2.68	2.58	3.01	3.01
13	3.09	3.11	7.3	3.55	3.65	2.70	3.31	2.82	2.65	2.58	3.00	2.90
14	3.03	3.08	6.4	3.5	3.55	2.69	3.20	2.88	2.64	2.67	3.00	2.84
15	3.04	3.10	7.5	3.42	3.55	2.72	3.20	2.84	2.62	2.84	2.96	2.83
16	3.06	3.06	7.4	3.47	5.5	2.77	3.09	2.77	2.62	2.76	2.89	2.88
17	3.02	3.08	5.8	3.48	5.6	2.77	3.00	2.72	2.62	2.70	2.86	2.83
18	2.98	3.18	5.0	3.5	4.7	2.78	2.96	2.74	2.70	2.66	2.82	2.84
19	3.24	3.22	4.6	3.48	4.25	2.83	3.02	2.75	2.70	2.69	2.78	2.84
20	4.3	3.35	4.35	3.42	4.0	2.86	2.98	3.16	2.70	2.79	2.76	2.79
21	3.9	4.8	4.15	3.42	3.75	2.78	2.93	3.7	2.66	2.86	2.72	2.78
22	3.7	6.4	4.1	3.42	3.6	2.72	2.92	3.55	2.69	2.72	2.72	2.76
23	3.6	4.8	3.95	3.6	3.48	2.75	3.10	3.48	2.94	2.76	2.70	2.72
24	3.55	4.4	4.2	3.5	3.39	3.08	3.06	3.38	3.39	2.79	2.74	2.74
25	3.5	4.3	4.8	3.48	3.42	6.2	3.30	3.24	3.11	2.80	2.70	2.66
26	3.5	4.3	4.7	3.43	3.32	4.15	3.56	3.18	2.96	2.78	2.69	2.78
27	4.1	4.8	4.45	4.6	3.20	4.45	3.74	3.36	3.24	2.74	2.69	2.90
28	3.95	4.5	4.25	5.3	3.16	4.3	3.10	3.26	3.05	2.70	2.72	2.86
29	4.0	4.2	7.8	4.8	3.17	4.5	3.02	3.16	2.94	2.69	2.70	2.90
30	4.8	....	6.4	4.9	3.12	3.95	3.37	3.08	2.84	2.68	2.68	3.08
31	4.8	....	5.0	....	3.06	....	2.90	3.08	....	2.67	....	4.62
1913												
1	3.95	4.1	4.4	4.1	3.19	3.9	2.90	2.55	2.61	2.51	2.68	2.78
2	3.6	3.95	4.1	3.9	3.14	3.65	2.88	2.54	2.52	2.50	2.62	3.8
3	3.6	3.9	3.9	3.75	3.10	3.45	2.86	2.51	2.50	2.50	2.58	3.48
4	3.65	4.05	3.7	3.6	3.09	3.48	2.80	2.49	2.48	2.47	2.56	3.34
5	3.55	4.0	3.6	3.5	3.01	3.35	3.44	2.48	2.46	2.45	2.58	3.20
6	3.14	3.9	3.49	3.42	3.00	3.22	3.08	2.54	2.45	2.46	2.59	3.12
7	3.85	3.7	3.39	3.34	3.00	3.19	2.92	2.66	2.44	2.46	2.58	3.08
8	3.85	3.6	3.28	3.30	3.02	3.7	2.80	2.58	2.46	2.44	2.60	3.10
9	4.35	3.48	3.25	3.26	3.00	3.7	2.74	2.58	2.46	2.48	3.23	3.02
10	4.05	3.40	3.25	3.20	2.98	3.48	2.71	2.54	2.46	2.46	3.41	2.92
11	3.9	3.42	3.38	3.27	2.94	3.36	2.72	2.58	2.42	2.46	3.13	3.02
12	4.15	3.6	3.44	4.2	2.90	3.45	2.90	2.70	2.40	2.44	3.00	2.90
13	4.8	3.45	3.42	5.2	2.88	3.38	2.95	2.67	2.43	2.41	3.00	2.92
14	4.3	3.35	4.6	4.7	2.88	3.29	2.85	2.66	2.38	2.41	3.26	2.88
15	4.0	3.28	5.8	4.35	3.02	3.14	2.79	2.66	2.34	2.40	3.36	2.86
16	3.8	3.28	5.8	4.3	2.90	3.04	2.80	2.63	2.40	2.40	3.31	2.86
17	3.65	3.32	4.8	3.7	2.94	3.11	2.72	2.56	2.46	2.38	3.9	2.80
18	3.6	3.27	4.3	4.0	2.99	3.08	2.74	2.51	2.54	2.40	3.85	2.78
19	3.48	3.19	4.1	3.9	2.90	3.25	2.82	2.48	2.62	2.44	3.5	2.76
20	3.38	3.20	3.9	3.75	2.84	3.15	2.78	2.64	2.52	2.76	3.32	2.73
21	3.39	3.25	3.8	3.55	2.93	3.00	2.70	2.64	2.76	2.90	3.18	2.71
22	3.7	3.24	3.75	3.46	3.00	2.91	2.65	2.60	3.07	2.76	3.07	2.70
23	3.6	3.20	3.55	3.40	3.32	3.15	2.59	2.62	2.86	2.68	3.02	2.71
24	3.75	3.22	3.48	3.36	5.2	3.35	2.62	2.72	2.74	2.68	2.97	2.70
25	4.05	3.22	3.46	3.29	4.3	3.30	2.70	2.63	2.62	3.26	2.92	2.72

Daily gage height, in feet, of Wolf Creek near Narrows, Va., for 1908–1914—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1913												
26	4.15	3.18	3.5	3.25	3.9	3.12	2.66	2.56	2.52	3.22	2.84	3.09
27	4.35	3.85	10.2	3.35	4.6	3.04	2.64	2.50	2.57	3.04	2.78	3.16
28	4.8	4.8	7.0	3.29	5.4	3.28	2.61	2.46	2.48	2.97	2.74	3.05
29	4.35	....	5.4	3.30	4.6	3.04	2.66	2.44	2.48	2.90	2.70	3.12
30	4.1	....	4.8	3.27	4.15	2.94	2.62	2.74	2.49	2.81	2.69	3.11
31	4.0	....	4.4	....	4.45	....	2.58	2.76	....	2.75	....	3.16
1914												
1	3.24	4.25	3.9	6.0	3.26	2.57	2.36	2.34	2.62	2.25	2.38	2.96
2	3.22	3.9	3.9	5.9	3.19	2.54	2.40	2.33	2.56	2.21	2.35	3.85
3	3.95	3.8	3.7	5.2	3.15	2.48	2.40	2.34	2.47	2.20	2.36	4.35
4	3.7	3.7	3.7	4.6	3.12	2.47	2.40	2.32	2.40	2.24	2.35	3.9
5	3.20	3.65	3.7	4.3	3.17	2.50	2.39	2.34	2.38	2.31	2.36	6.2
6	3.19	3.7	3.8	4.05	3.20	2.53	2.39	2.34	2.37	2.32	2.34	4.8
7	3.16	5.0	3.7	3.85	3.18	2.58	2.38	2.34	2.34	2.30	2.36	4.25
8	3.16	4.8	3.65	3.85	3.12	2.57	2.34	2.33	2.32	2.31	2.35	3.95
9	3.7	4.35	3.6	3.8	3.14	2.50	2.34	2.42	2.32	2.26	2.37	3.7
10	5.2	4.1	3.46	3.7	3.13	2.52	2.36	2.42	2.31	2.25	2.33	3.5
11	4.5	3.95	4.7	3.6	3.08	2.47	2.46	2.46	2.34	2.22	2.34	3.40
12	4.05	3.7	5.6	3.55	3.04	2.46	2.46	2.48	2.45	2.21	2.36	3.29
13	3.6	3.6	5.0	3.5	3.02	2.60	2.42	2.42	2.48	2.21	2.35	3.21
14	3.5	3.40	4.6	3.41	3.00	2.74	3.12	2.30	2.42	2.32	2.36	3.18
15	3.48	3.49	4.5	3.6	2.98	2.56	3.12	2.32	2.35	2.48	2.42	2.92
16	3.40	3.42	4.8	4.4	2.94	2.49	2.68	2.30	2.31	2.94	2.63	2.85
17	3.37	3.31	5.3	4.45	2.88	2.48	2.62	2.29	2.29	3.05	2.73	3.05
18	3.31	3.6	5.4	4.2	2.85	2.44	2.64	2.26	2.27	2.78	2.71	3.00
19	3.25	4.9	5.1	4.0	2.84	2.44	2.60	2.24	2.26	2.76	2.67	2.95
20	3.29	6.5	4.35	4.3	2.83	2.45	2.58	2.21	2.24	2.70	2.62	3.35
21	4.25	5.4	4.0	4.4	2.81	2.70	2.48	2.18	2.26	2.62	2.42	4.05
22	4.05	4.8	3.95	4.2	2.79	2.67	2.41	2.19	2.24	2.54	2.54	4.6
23	3.75	4.3	3.75	4.05	2.75	2.54	2.38	2.23	2.24	2.49	2.56	4.1
24	3.6	4.7	3.8	3.9	2.71	2.48	2.34	2.22	2.28	2.50	2.45	3.85
25	5.1	4.4	3.9	3.75	2.68	2.48	2.32	2.31	2.35	2.44	2.49	4.0
26	4.6	4.15	4.05	3.7	2.65	2.47	2.38	2.65	2.38	2.38	2.50	3.8
27	4.2	4.05	4.3	3.6	2.64	2.44	2.42	2.86	2.40	2.40	2.48	3.40
28	3.9	3.95	4.15	3.48	2.60	2.41	2.46	3.8	2.32	2.48	2.51	3.41
29	3.8	....	4.05	3.38	2.59	2.40	2.44	3.38	2.29	2.45	2.50	3.55
30	3.6	....	4.9	3.33	2.60	2.38	2.39	2.92	2.28	2.45	2.56	5.1
31	3.9	....	5.8	....	2.60	....	2.35	2.73	....	2.42	....	4.9

NOTE.—No ice near station except in extremely cold weather; discharge relation probably not seriously affected thereby.

TENNESSEE RIVER BASIN.

SOUTH FORK OF HOLSTON RIVER NEAR CHILHOWIE, VA.

Location.—At Cole's footbridge just above mouth of Goose Creek, 2 miles below St. Clair Creek, and 4½ miles south of Chilhowie.

Drainage area.—108 square miles.

Records available.—June 10, 1907, to December 31, 1909.

Gage.—Vertical staff spiked to an oak tree on left bank about 100 feet below bridge; read once daily.

Discharge measurements.—Made from footbridge.

Channel and control.—No information on channel. Plotting of discharge measurements indicates that control changes slightly.

Extremes of discharge.—Maximum stage observed: 4.4 feet, June 11, 1907; discharge not computed. Minimum stage observed: 0.4 foot, September to December, 1909; discharge, 40 second-feet.

Winter flow.—No information. Discharge relation probably not affected by ice.

Regulation.—Operation of mills above station probably has some influence on flow, especially at low stages.

Accuracy.—Records good except at extremely high and low stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with United States Forest Service.

Discharge measurements of South Fork of Holston River near Chilhowie, Va., in 1907–1909.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1907				1908			
June 10...	W. E. Hall.........	1.40	385	July 7....	F. P. Thomas......	1.05	198
Aug. 13...	B. M. Hall, Jr.....	.68	97	July 7....	W. E. Hall.........	1.08	187
Sept. 9....	.....do	.57	68				
				1909			
1908				Mar. 20..	W. A. Lamb........	1.06	188
Feb. 21 ...	W. E. Hall.........	1.07	187	Sept. 23..	E. H. Swett........	.49	51
July 7.....	F. P. Thomas......	1.08	199	Sept. 23..	.....do	.40	40

Daily gage height, in feet, of South Fork of Holston River near Chilhowie, Va., for 1907–1909.

[P. Cole, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	......	0.8	0.9	0.6	0.8	0.6	0.8
2	......	......	......	......	......	......	.7	.8	.6	.7	.5	.9
3	......	......	......	......	......	......	.9	.8	.6	.7	.8	.8
4	......	......	......	......	......	......	.7	.7	.6	.7	.8	.8
5	......	......	......	......	......	......	.7	.7	.6	.9	.7	.7
6	......	......	......	......	......	......	.7	.7	.6	.8	.7	.7
7	......	......	......	......	......	......	.7	.7	.6	.8	.7	.7
8	......	......	......	......	......	......	.6	.7	.6	.7	.6	.6
9	......	......	......	......	......	......	.6	.6	.5	.7	.6	.7
10	......	......	......	......	......	1.4	.8	.8	.5	.7	.9	.8
11	......	......	......	......	......	4.4	.8	.7	.6	.7	1.3	.9
12	......	......	......	......	......	2.6	.7	.7	.6	.6	1.1	.9
13	......	......	......	......	......	3.0	1.4	.7	.6	.6	1.0	.9
14	......	......	......	......	......	4.1	1.1	.6	.5	.6	.9	1.0
15	......	......	......	......	......	2.6	.9	.6	.5	.6	.8	1.3
16	......	......	......	......	......	1.9	1.0	.6	.5	.6	.8	1.3
17	......	......	......	......	......	1.6	.9	.8	.5	.6	.7	1.2
18	......	......	......	......	......	1.4	.8	.8	.7	.6	.8	1.1
19	......	......	......	......	......	1.3	1.0	.7	.7	.6	.9	1.0
20	......	......	......	......	......	1.2	.9	.7	.7	.5	1.0	.9
21	......	......	......	......	......	1.1	.8	.6	.6	.5	1.0	.9
22	......	......	......	......	......	1.1	.7	.6	.8	.5	1.0	.8
23	......	......	......	......	......	1.0	.8	.6	2.3	.5	1.0	1.0
24	......	......	......	......	......	1.0	.7	.8	2.1	.5	1.4	1.5
25	......	......	......	......	......	1.0	.7	.7	1.5	.5	1.5	1.3
26	......	......	......	......	......	.9	.7	.7	1.2	.5	1.3	1.1
27	......	......	......	......	......	.9	.7	.6	1.0	.5	1.1	1.0
28	......	......	......	......	......	.8	.6	.6	.9	.6	1.0	1.0
29	......	......	......	......	......	.9	.6	.6	.9	.6	1.0	.9
30	......	......	......	......	......	.8	1.3	.6	.8	.5	.9	1.2
31	......	......	......	......	......	......	1.0	.9	......	.5	......	1.6
1908												
1	1.4	0.9	1.1	1.3	0.9	.8	1.2	.6	.6	.4	1.1	.9
2	1.2	.9	1.6	2.5	.9	.8	.9	.5	.6	.4	1.0	1.2
3	1.1	.8	1.5	2.6	.9	.8	.8	.5	.6	.4	.9	1.1
4	1.0	.8	1.4	1.9	.8	1.2	.8	.6	.6	.4	.8	1.0
5	1.3	.9	1.3	1.6	.8	1.9	1.2	.5	.5	.4	.8	.9
6	1.3	1.0	2.1	1.4	.8	1.4	1.2	.6	.6	.4	.7	.9
7	1.2	1.0	1.8	1.3	1.1	1.1	1.1	.6	.6	.4	.7	1.4
8	1.1	.9	1.5	1.2	1.5	1.0	1.0	.6	.5	.4	.7	2.1
9	1.0	.9	1.3	1.1	1.3	.9	1.0	.8	.6	.4	.6	1.5
10	1.0	.9	1.2	1.0	1.2	.9	.9	.7	.5	.6	.6	1.3
11	.9	.9	1.1	1.0	1.1	.8	.8	.6	.5	.6	.7	1.1
12	4.0	1.1	1.2	1.0	1.0	.8	.8	.6	.5	.5	.8	1.3
13	2.4	1.8	1.1	.9	1.0	.8	.7	.6	.5	.5	.8	1.3
14	1.8	2.2	1.1	.9	.9	.7	1.0	.6	.5	.4	.8	1.2
15	1.6	2.5	1.1	.9	.9	1.1	.8	.5	.5	.4	.8	1.1
16	1.4	2.1	1.1	.9	.8	.9	.8	.5	.5	.4	.7	1.0
17	1.3	1.7	1.0	.9	.8	.8	.7	.5	.4	.4	.7	1.0
18	1.2	1.4	1.0	.8	.8	.8	.7	.5	.4	.4	.8	.9
19	1.1	1.3	1.0	.8	.8	.7	.8	.6	.4	.4	.9	.9
20	1.1	1.2	1.0	.8	.9	.7	.7	.6	.4	.4	.9	.9
21	1.0	1.1	1.1	.8	.8	.7	.6	.5	.5	.4	.9	.9
22	1.0	1.1	1.2	.8	.8	.7	.9	.6	.4	.4	.8	1.0
23	1.1	1.0	1.3	.8	.8	1.2	.7	.8	.4	.4	.8	1.1
24	1.0	1.0	1.4	.7	.8	1.0	.7	.7	.4	.8	.7	1.0
25	1.0	.9	1.4	.9	.9	.9	.6	.6	.4	.7	.7	1.1

Daily gage height, in feet, of South Fork of Holston River near Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
26	1.0	1.0	1.3	1.4	.8	.8	.6	.9	.4	.6	.7	1.6
27	1.1	1.0	1.2	1.2	1.0	.7	.7	.9	.4	.6	.7	1.4
28	1.0	.9	1.1	1.1	1.0	.7	.6	.8	.4	.6	.6	1.3
29	1.0	.9	1.0	1.0	.9	.7	.6	.7	.4	.9	.6	1.3
30	.9	....	1.0	.9	1.1	.7	.7	.7	.4	1.4	.7	1.6
31	.9	....	.9	....	.9	....	.6	.7	....	1.5	....	1.8
1909												
1	1.7	0.8	1.1	1.3	1.8	0.7	0.8	0.6	0.5	0.4	0.4	0.4
2	1.5	.8	1.1	1.2	1.8	.7	.8	.7	.4	.4	.4	.4
3	1.3	.8	1.0	1.2	1.5	.8	.7	.6	.5	.4	.4	.4
4	1.2	.8	1.1	1.1	1.3	1.1	.7	.6	.5	.4	.4	.4
5	1.4	.8	1.0	1.0	1.2	1.3	.7	.6	.4	.4	.4	.4
6	1.7	.9	1.1	1.0	1.1	1.1	.7	.5	.4	.4	.4	.4
7	1.5	.8	1.6	1.0	1.0	.9	.9	.6	.5	.4	.4	.4
8	1.3	.9	1.4	.9	.9	.8	1.5	.6	.4	.4	.4	.5
9	1.2	.9	1.3	.9	.9	1.0	1.2	.6	.5	.4	.4	.5
10	1.1	2.4	1.4	.9	1.2	1.1	1.0	.5	.4	.4	.4	.4
11	1.0	1.9	1.4	.9	1.3	1.0	.9	.5	.5	.5	.4	.4
12	1.0	1.5	1.3	.8	1.2	.9	.8	.5	.4	.8	.4	.4
13	.9	1.3	1.2	.8	1.1	.9	.9	.5	.4	.4	.4	.5
14	.9	1.2	1.4	1.2	1.0	.9	1.3	.5	.4	.4	.4	.7
15	.9	1.1	1.5	1.2	.9	.8	1.1	.6	.4	.6	.4	.6
16	.9	1.3	1.4	1.1	.9	1.2	.9	.7	.6	.6	.4	.6
17	1.3	1.3	1.3	1.0	.9	1.0	.9	.7	.5	.5	.4	.5
18	1.3	1.2	1.2	.9	.8	1.1	.8	.8	.4	.5	.4	.5
19	1.2	1.2	1.1	.9	.8	1.0	.8	.7	.4	.5	.4	.4
20	1.2	1.2	1.0	.9	.8	.9	.7	.6	.4	.5	.4	.4
21	1.1	1.2	1.2	.9	1.2	.8	.7	.6	.4	.5	.4	.4
22	1.0	1.2	1.0	.9	1.5	.8	.7	.5	.4	.5	.4	.4
23	1.0	1.3	1.0	.9	1.2	.7	.7	.5	.4	.4	.4	.4
24	.9	1.4	1.0	.9	1.1	.8	.6	.5	.5	.5	.4	.4
25	.9	1.6	1.2	.9	1.0	.7	.6	.5	.5	.5	.4	.4
26	1.0	1.4	1.5	.9	.9	.7	.6	.5	.4	.5	.4	.4
27	1.1	1.3	1.4	.8	.9	.7	.6	.5	.4	.5	.4	.4
28	1.1	1.2	2.1	.9	.8	.8	.6	.5	.4	.5	.4	.4
29	1.0	....	2.1	.8	.8	.8	.6	.5	.4	.5	.4	.4
30	1.0	....	1.7	.8	.7	.8	.7	.5	.4	.4	.4	.4
31	.9	....	1.5	....	.7	....	.6	.5	....	.4	....	.4

Daily discharge, in second-feet, of South Fork of Holston River near Chilhowie, Va., for 1907–1909.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	....	....	....	....	....	....	119	145	79	119	79	119
2	....	....	....	....	....	....	97	119	79	97	65	145
3	....	....	....	....	....	....	145	119	79	97	119	119
4	....	....	....	....	....	....	97	97	79	97	119	119
5	....	....	....	....	....	....	97	97	79	145	97	97
6	....	....	....	....	....	....	97	97	79	119	97	97
7	....	....	....	....	....	....	97	97	79	119	97	97
8	....	....	....	....	....	....	79	97	79	97	79	79
9	....	....	....	....	....	....	79	79	65	97	79	97
10	....	....	....	....	....	300	119	119	65	97	145	119

Daily discharge, in second-feet, of South Fork of Holston River near Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
11	......	......	......	......	......	......	119	97	79	97	300	145
12	......	......	......	......	......	......	97	97	79	79	210	145
13	......	......	......	......	......	......	360	97	79	79	175	145
14	......	......	......	......	......	......	210	79	65	79	145	175
15	......	......	......	......	......	......	145	79	65	79	119	300
16	......	......	......	......	......	760	175	79	65	79	119	300
17	......	......	......	......	......	505	145	119	65	79	97	250
18	......	......	......	......	......	360	119	119	97	79	119	210
19	......	......	......	......	......	300	175	97	97	79	145	175
20	......	......	......	......	......	250	145	97	97	65	175	145
21	......	......	......	......	......	210	119	79	79	65	175	145
22	......	......	......	......	......	210	97	79	119	65	175	119
23	......	......	......	......	......	175	119	79	......	65	175	175
24	......	......	......	......	......	175	97	119	......	65	360	430
25	......	......	......	......	......	175	97	97	430	65	430	300
26	......	......	......	......	......	145	97	97	250	65	300	210
27	......	......	......	......	......	145	97	79	175	65	210	175
28	......	......	......	......	......	119	79	79	145	79	175	175
29	......	......	......	......	......	145	79	79	145	79	175	145
30	......	......	......	......	......	119	300	79	119	65	145	250
31	......	......	......	......	......	......	175	145	......	65	......	505
1908												
1	360	145	210	300	145	119	250	79	79	55	210	145
2	250	145	505	......	145	119	145	65	79	55	175	250
3	210	119	430	......	145	119	119	65	79	55	145	210
4	175	119	360	760	119	250	119	79	79	55	119	175
5	300	145	300	505	119	760	250	65	65	55	119	145
6	300	175	......	360	119	360	250	79	79	55	97	145
7	250	175	670	300	210	210	210	79	79	55	97	360
8	210	145	430	250	430	175	175	79	65	55	97	......
9	175	145	300	210	300	145	175	119	79	55	79	430
10	175	145	250	175	250	145	145	97	65	79	79	300
11	145	145	210	175	210	119	119	79	65	79	97	210
12	......	210	250	175	175	119	119	79	65	65	119	300
13	......	670	210	145	175	119	97	79	65	65	119	300
14	670	......	210	145	145	97	175	79	65	55	119	250
15	505	......	210	145	145	210	119	65	65	55	119	210
16	360	......	210	145	119	145	119	65	65	55	97	175
17	300	585	175	145	119	119	97	65	55	55	97	175
18	250	360	175	119	119	119	97	65	55	55	119	145
19	210	300	175	119	119	97	119	79	55	55	145	145
20	210	250	175	119	145	97	97	79	55	55	145	145
21	175	210	210	119	119	97	79	65	65	55	145	145
22	175	210	250	119	119	97	145	79	55	55	119	175
23	210	175	300	119	119	250	97	119	55	55	119	210
24	175	175	360	97	119	175	97	97	55	119	97	175
25	175	145	360	145	145	145	79	79	55	97	97	210
26	175	175	300	360	119	119	79	145	55	79	97	505
27	210	175	250	250	175	97	97	145	55	79	97	360
28	175	145	210	210	175	97	79	119	55	79	79	300
29	175	145	175	175	145	97	79	97	55	145	79	300
30	145	......	175	145	210	97	97	97	55	360	97	505
31	145	......	145	......	145	......	79	97	......	430	......	670
1909												
1	585	120	210	300	670	95	120	75	55	40	40	40
2	430	120	210	250	670	95	120	95	40	40	40	40
3	300	120	175	250	430	120	95	75	55	40	40	40
4	250	120	210	210	300	210	95	75	55	40	40	40
5	360	120	175	175	250	300	95	75	40	40	40	40

Daily discharge, in second-feet, of South Fork of Holston River near Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
6	585	145	210	175	210	210	95	55	40	40	40	40
7	430	120	505	175	175	145	145	75	55	40	40	40
8	300	145	360	145	145	120	430	75	40	40	40	55
9	250	145	300	145	145	175	250	75	55	40	40	55
10	210	1,260	360	145	250	210	175	55	40	40	40	40
11	175	760	360	145	300	175	145	55	55	55	40	40
12	175	430	300	120	250	145	120	55	40	120	40	40
13	145	300	250	120	210	145	145	55	40	40	40	55
14	145	250	360	250	175	145	300	55	40	40	40	95
15	145	210	430	250	145	120	210	75	40	75	40	75
16	145	300	360	210	145	250	145	95	75	75	40	75
17	300	300	300	175	145	175	145	95	55	55	40	55
18	300	250	250	145	120	210	120	120	40	55	40	55
19	250	250	210	145	120	175	120	95	40	55	40	40
20	250	250	175	145	120	145	95	75	40	55	40	40
21	210	250	250	145	250	120	95	75	40	55	40	40
22	175	250	175	145	430	120	95	55	40	55	40	40
23	175	300	175	145	250	95	95	55	40	40	40	40
24	145	360	175	145	210	120	75	55	55	55	40	40
25	145	505	250	145	175	95	75	55	55	55	40	40
26	175	360	430	145	145	95	75	55	40	55	40	40
27	210	300	360	120	145	95	75	55	40	55	40	40
28	210	250	945	145	120	120	75	55	40	55	40	40
29	175	....	945	120	120	120	75	55	40	55	40	40
30	175	....	585	120	95	120	95	55	40	40	40	40
31	145	....	430	....	95	....	75	55	....	40	....	40

NOTE.—Discharge for 1907 and 1908 determined from a rating curve fairly well defined between 50 and 500 second-feet; after June 10, 1907, on days for which estimates are missing, discharge was greater than 900 second-feet. Discharge for 1909 determined from the same rating curve slightly revised below 145 second-feet and extended to 1,260 second-feet.

Monthly discharge of South Fork of Holston River near Chilhowie, Va., for 1909.

[Drainage area, 108 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
January	585	145	247	2.29	2.64	A.
February	1,260	120	296	2.74	2.85	A.
March	945	175	336	3.11	3.58	A.
April	300	120	168	1.56	1.74	A.
May	670	95	226	2.09	2.41	A.
June	300	95	149	1.38	1.54	A.
July	430	75	131	1.21	1.40	A.
August	120	55	68.7	.636	.73	B.
September	75	40	45.7	.423	.47	C.
October	120	40	51.1	.473	.55	C.
November	40	40	40.0	.370	.41	C.
December	95	40	46.5	.431	.50	C.
The year	1,260	40	150	1.39	18.82	

NOTE.—Monthly discharge not computed for 1907-8, as there were several periods when the stage was greater than that for which the rating curve was applicable.

MIDDLE FORK OF HOLSTON RIVER AT CHILHOWIE, VA.

Location.—At iron highway bridge in Chilhowie, about 600 feet south of the Norfolk & Western Railway station.

Drainage area.—144 square miles.

Records available.—June 8, 1907, to December 31, 1909.

Gage.—Chain on highway bridge; read once daily.

Discharge measurements.—Made from highway bridge.

Channel and control.—Right bank overflows at high water. Bed composed of gravel and bowlders. Control fairly permanent.

Extremes of discharge.—Maximum stage recorded: 10.2 feet, June 11, 1907; discharge not computed. Maximum stage may have occurred on other days as gage was not read during extreme floods. Minimum stage recorded: 1.0 foot, November, 1908, and October and November, 1909; discharge, 25 second-feet.

Winter flow.—No information. Discharge relation probably not affected by ice.

Accuracy.—Records fair except for extreme low and high stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with United States Forest Service.

Discharge measurements of Middle Fork of Holston River at Chilhowie, Va., in 1907–1909.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1907				1908			
June 8	W. E. Hall	4.47	1,780	July 4	F. P. Thomas	1.43	130
Aug. 12	B. M. Hall, Jr.	1.44	112	July 7	do	1.40	146
Aug. 13	W. E. Hall	1.50	140	July 7	W. E. Hall	1.40	144
Aug. 13	Hall and Hall	1.50	141				
Sept. 9	B. M. Hall	1.39	101	1909			
				Mar. 19	W. A. Lamb	1.70	249
1908				Sept. 24	E. H. Swett	1.27	92
Feb. 20	W. E. Hall	1.84	320	Sept. 24	do	1.26	90

Daily gage height, in feet, of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909.

[W. G. Baylor, observer.]

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907								1907							
1	......	1.6	1.5	1.5	1.4	1.4	1.8	16	2.9	2.2	1.7	1.6	1.5	1.4	1.6
2	......	1.6	1.4	1.4	1.3	1.3	1.7	17	2.5	1.9	1.6	1.5	1.3	1.5	1.8
3	......	1.5	1.5	1.3	1.2	1.2	1.5	18	2.1	1.9	1.7	1.5	1.4	1.6	1.7
4	......	1.5	1.5	1.6	1.4	1.3	1.4	19	2.0	1.8	1.8	1.3	1.3	1.8	1.6
5	......	1.5	1.4	1.4	1.5	1.5	1.6	20	1.9	2.0	1.7	1.3	1.2	1.6	1.5
6	......	1.6	1.5	1.4	1.4	1.4	1.5	21	1.9	1.7	1.5	1.5	1.3	1.4	1.4
7	......	1.6	1.3	1.6	1.6	1.5	1.6	22	1.9	1.7	1.6	1.6	1.4	1.3	1.3
8	......	1.5	1.4	1.4	1.7	1.6	1.8	23	1.9	1.6	1.5	......	1.3	1.5	1.4
9	......	1.5	1.5	1.5	1.4	1.7	1.7	24	1.9	1.6	1.6	2.4	1.3	1.7	1.5
10	2.2	3.05	1.6	1.4	1.3	2.4	1.6	25	1.9	1.5	1.5	1.8	1.4	1.8	1.6
11	10.2	1.8	1.6	1.3	1.4	2.6	1.8	26	1.8	1.7	1.5	1.6	1.3	1.6	1.5
12	3.8	3.6	1.7	1.6	1.5	1.9	1.5	27	1.7	1.9	1.7	1.5	1.4	1.6	1.6
13	......	2.6	1.5	1.4	1.3	1.8	1.6	28	1.6	1.6	1.6	1.3	1.5	1.7	1.9
14	7.5	1.9	1.6	1.6	1.3	1.6	1.4	29	2.0	1.5	1.4	1.4	1.6	1.9	1.5
15	4.3	1.8	1.5	1.4	1.4	1.7	1.5	30	1.8	1.7	1.5	1.3	1.5	2.0	1.6
								31	......	1.6	1.4	......	1.4	......	1.7

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	1.4	1.8	2.2	5.1	1.9	1.6	2.7	2.1	2.2	1.3	1.3	1.3
2	1.5	1.9	2.4	5.2	1.9	1.6	2.6	2.4	2.1	1.3	1.3	1.2
3	1.5	2.3	2.2	4.5	1.8	1.6	2.6	2.3	2.1	1.3	1.3	1.2
4	1.6	2.8	2.0	4.0	1.8	3.2	2.6	2.3	2.1	1.3	1.3	1.2
5	2.8	....	2.2	3.4	1.8	2.6	2.6	2.2	2.1	1.3	1.3	1.2
6	2.5	....	3.9	3.4	1.7	2.4	2.6	2.2	2.5	1.3	1.4	1.2
7	2.0	2.9	2.7	3.7	1.7	2.0	2.4	2.1	2.4	1.3	1.4	3.3
8	1.8	2.5	2.5	3.3	1.7	1.8	2.4	2.1	2.4	1.3	1.3	3.5
9	1.5	1.9	2.4	3.0	1.8	1.8	2.4	2.3	2.3	1.3	1.3	3.2
10	1.5	1.8	2.2	2.9	1.6	1.7	2.3	2.7	2.3	1.2	1.3	3.1
11	1.5	1.9	2.1	2.9	1.5	1.7	2.3	2.5	2.2	1.2	1.3	3.1
12	....	1.8	2.15	2.8	1.5	1.7	2.3	2.4	2.2	1.2	1.3	3.0
13	3.2	2.4	2.1	2.8	1.6	1.6	2.2	2.3	2.2	1.2	1.3	2.9
14	2.9	2.8	2.0	2.8	1.6	1.6	2.2	2.3	2.2	1.2	1.3	2.9
15	2.5	2.9	2.0	2.7	1.5	1.6	2.1	2.2	2.2	1.2	1.2	2.7
16	1.9	2.2	2.0	2.7	1.5	1.5	2.1	2.6	2.2	1.2	1.2	2.6
17	1.6	2.0	2.0	2.7	1.4	1.5	2.5	2.4	2.1	1.2	1.2	2.8
18	1.5	2.0	1.9	2.7	1.5	1.4	2.7	2.2	2.1	1.1	1.1	2.7
19	1.5	1.9	1.9	2.3	1.6	1.4	2.6	2.2	2.1	1.2	1.1	2.6
20	1.7	2.0	1.8	2.0	1.7	1.7	2.5	2.2	2.1	1.2	1.1	2.5
21	1.8	1.9	1.8	1.9	1.7	1.8	2.5	2.1	2.1	1.2	1.1	2.5
22	1.5	1.8	1.8	1.8	1.6	1.7	2.4	2.1	2.1	1.2	1.0	2.4
23	1.4	1.8	1.7	1.7	1.6	2.5	2.4	2.1	2.0	1.1	1.0	2.3
24	1.5	1.7	1.7	1.7	1.8	2.1	2.3	2.4	1.9	1.2	1.0	2.3
25	1.5	1.7	1.8	1.7	2.1	1.9	2.3	2.6	1.9	1.2	1.0	2.2
26	1.5	1.8	1.8	2.7	1.9	1.8	2.3	2.7	1.8	1.2	1.0	2.4
27	1.6	1.8	1.8	2.3	1.8	1.7	2.2	2.6	1.7	1.2	1.0	2.4
28	1.7	1.8	1.8	2.2	1.7	1.7	2.2	2.5	1.7	1.4	1.0	3.6
29	1.9	1.7	1.8	2.0	1.7	1.6	2.1	2.5	1.6	1.5	1.0	3.7
30	1.8	....	2.2	2.0	1.8	1.6	2.1	2.4	1.6	1.4	1.3	3.5
31	1.8	....	4.85	....	1.8	....	2.1	2.2	....	1.3	....	3.3

Daily gage height, in feet, of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
1	2.6	2.5	1.7	1.9	3.4	1.2	1.4	1.3	1.1	1.3	1.0	1.1
2	2.3	2.5	1.7	1.8	2.8	1.2	1.4	2.0	1.1	1.3	1.0	1.1
3	2.2	2.4	1.8	1.8	2.0	1.2	1.3	1.6	1.3	1.3	1.0	1.1
4	2.2	2.5	1.7	1.7	1.8	1.7	1.3	1.4	1.3	1.2	1.0	1.1
5	2.0	2.3	1.9	1.7	1.7	1.6	1.3	1.3	1.2	1.1	1.1	1.1
6	1.9	2.4	2.3	1.7	1.7	1.4	1.3	1.3	1.2	1.1	1.1	1.1
7	1.9	2.2	2.5	1.6	1.7	1.2	1.6	1.3	1.2	1.1	1.1	1.1
8	1.8	2.0	2.2	1.6	1.6	1.2	2.2	1.3	1.2	1.1	1.1	1.2
9	1.7	2.0	2.0	1.5	1.6	1.2	1.8	1.3	1.7	1.1	1.1	1.2
10	1.7	1.8	2.9	1.4	2.8	1.3	1.6	1.4	1.6	1.1	1.1	1.1
11	1.7	1.7	2.3	1.5	2.6	1.3	1.4	1.4	1.5	1.4	1.1	1.1
12	1.7	1.7	2.0	1.5	2.4	1.3	1.3	1.3	1.5	1.4	1.1	1.1
13	1.6	1.6	2.1	1.5	2.0	1.2	1.7	1.3	1.5	1.3	1.1	1.1
14	1.6	1.6	2.4	1.7	2.0	1.2	1.5	1.3	1.4	1.3	1.1	1.3
15	1.5	1.5	2.1	1.7	1.8	1.2	1.4	1.3	1.4	1.3	1.1	1.3
16	2.85	1.5	1.9	1.6	1.6	1.1	1.5	1.2	1.3	1.3	1.1	1.2
17	2.9	1.5	1.8	1.5	1.4	1.1	1.4	1.2	1.3	1.2	1.1	1.2
18	2.7	1.5	1.7	1.5	1.4	1.3	1.3	1.2	1.3	1.2	1.1	1.2
19	2.6	1.8	1.7	1.5	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.2
20	2.6	2.1	1.6	1.4	1.3	1.4	1.3	1.2	1.2	1.2	1.1	1.2
21	2.4	2.0	2.8	1.4	1.3	1.4	1.4	1.2	1.2	1.2	1.1	1.2
22	2.2	1.9	2.2	1.5	2.4	1.3	1.3	1.1	1.2	1.2	1.1	1.2
23	2.0	1.7	1.9	1.7	2.2	1.2	1.3	1.1	1.2	1.3	1.1	1.2
24	2.0	1.7	1.7	1.6	2.0	1.2	1.3	1.1	1.2	1.2	1.1	1.3
25	1.9	2.7	3.0	1.5	1.8	1.2	1.3	1.1	1.2	1.2	1.1	1.3
26	1.9	2.4	2.4	1.4	1.7	1.2	1.3	1.1	1.2	1.2	1.1	1.3
27	1.9	1.9	2.1	1.4	1.4	1.2	1.3	1.1	1.2	1.1	1.1	1.3
28	1.9	1.7	5.1	1.4	1.7	4.3	1.3	1.1	1.4	1.1	1.1	1.3
29	1.8	....	3.4	1.4	1.8	3.9	1.3	1.1	1.3	1.1	1.1	1.3
30	1.7	....	2.4	7.4	1.6	3.0	1.3	1.1	1.3	1.0	1.1	1.3
31	1.7	....	2.0	....	1.4	....	1.3	1.1	....	1.0	....	1.3

NOTE.—Gage not read on days in 1907-8 for which gage heights are missing.

Daily discharge, in second-feet, of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	....	....	....	....	....	....	208	168	168	132	132	294
2	....	....	....	....	....	....	208	132	132	99	99	250
3	....	....	....	....	....	....	168	168	99	71	71	168
4	....	....	....	....	....	....	168	168	208	132	99	132
5	....	....	....	....	....	....	168	132	132	168	168	208
6	....	....	....	....	....	....	208	168	132	132	132	168
7	....	....	....	....	....	....	208	99	208	208	168	208
8	....	....	....	....	....	....	168	132	132	250	208	294
9	....	....	....	....	....	....	168	168	168	132	250	250
10	....	....	....	....	....	484	952	208	132	99	591	208
11	....	....	....	....	....	....	294	208	99	132	700	294
12	....	....	....	....	....	1,390	1,270	250	208	168	339	168
13	....	....	....	....	....	....	700	168	132	99	294	208
14	....	....	....	....	....	3,820	339	208	208	99	208	132
15	....	....	....	....	....	1,680	294	168	132	132	250	168

Daily discharge, in second-feet, of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
16						867	484	250	208	168	132	208
17						645	339	208	168	99	168	294
18						433	339	250	168	132	208	250
19						385	294	294	99	99	294	208
20						339	385	250	99	71	208	168
21						339	250	168	168	99	132	132
22						339	250	208	208	132	99	99
23						339	208	168	....	99	168	132
24						339	208	208	591	99	250	168
25						339	168	168	294	132	294	208
26						294	250	168	208	99	208	168
27						250	339	250	168	132	208	208
28						208	208	208	99	168	250	339
29						385	168	132	132	208	339	168
30						294	250	168	99	168	385	208
31						....	208	132	....	132	....	250
1908												
1	132	294	484	2,160	339	208	250	47	71	47	99	99
2	168	339	591	2,230	339	208	208	132	47	47	99	71
3	168	537	484	1,800	294	208	208	99	47	47	99	71
4	208	811	385	1,510	294	1,040	208	99	47	47	99	71
5	811	830	484	1,150	294	700	208	71	47	47	99	71
6	645	850	1,450	1,150	250	591	208	71	168	47	132	71
7	385	867	755	1,330	250	385	132	47	132	47	132	1,100
8	294	645	645	1,100	250	294	132	47	132	47	99	1,210
9	168	339	591	924	294	294	132	99	99	47	99	1,040
10	168	294	484	867	208	250	99	250	99	71	99	981
11	168	339	433	867	168	250	99	168	71	71	99	981
12	....	294	458	811	168	250	99	132	71	71	99	924
13	1,040	591	433	811	208	208	71	99	71	71	99	867
14	867	811	385	811	208	208	71	99	71	71	99	867
15	645	867	385	755	168	208	47	71	71	71	71	755
16	339	484	385	755	168	168	47	208	71	71	71	700
17	208	385	385	755	132	168	168	132	47	71	71	811
18	168	385	339	755	168	132	250	71	47	47	47	755
19	168	339	339	537	208	132	208	71	47	71	47	700
20	250	385	294	385	250	250	168	71	47	71	47	645
21	294	339	294	339	250	294	168	47	47	71	47	645
22	168	294	294	294	208	250	132	47	47	71	25	591
23	132	294	250	250	208	645	132	47	47	47	25	537
24	168	250	250	250	294	433	99	132	47	71	25	537
25	168	250	294	250	433	339	99	208	47	71	25	484
26	168	294	294	755	339	294	99	250	47	71	25	591
27	208	294	294	537	294	250	71	208	47	71	25	591
28	250	294	294	484	250	250	71	168	47	132	25	1,270
29	339	250	294	385	250	208	47	168	47	168	25	1,330
30	294	....	484	385	294	208	47	132	47	132	99	1,210
31	294	....	2,010	....	294	....	47	71	....	99	....	1,100
1909												
1	700	645	250	339	1,150	71	132	99	47	99	25	47
2	537	645	250	294	811	71	132	385	47	99	25	47
3	484	591	294	294	385	71	99	208	99	99	25	47
4	484	645	250	250	294	250	99	132	99	71	25	47
5	385	537	339	250	250	208	99	99	71	47	47	47
6	339	591	537	250	250	132	99	99	71	47	47	47
7	339	484	645	208	250	71	208	99	71	47	47	47
8	294	385	484	208	208	71	484	99	71	47	47	71
9	250	385	385	168	208	71	294	99	250	47	47	71
10	250	294	867	132	811	99	208	132	208	47	47	47

Daily discharge, in second-feet, of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
11	250	250	537	168	700	99	132	132	168	132	47	47
12	250	250	385	168	591	99	99	99	168	132	47	47
13	208	208	433	168	385	71	250	99	168	99	47	47
14	208	208	591	250	385	71	168	99	132	99	47	99
15	168	168	433	250	294	71	132	99	132	99	47	99
16	839	168	339	208	208	47	168	71	99	99	47	71
17	867	168	294	168	132	47	132	71	99	71	47	71
18	765	168	250	168	132	99	99	71	99	71	47	71
19	700	294	250	168	99	99	99	71	71	71	47	71
20	700	433	208	132	99	132	99	71	71	71	47	71
21	591	385	811	132	99	132	132	71	71	71	47	71
22	484	339	484	168	591	99	99	47	71	71	47	71
23	385	250	339	250	484	71	99	47	71	99	47	71
24	385	250	250	208	385	71	99	47	71	71	47	99
25	339	755	924	168	294	71	99	47	71	71	47	99
26	339	591	591	132	250	71	99	47	71	71	47	99
27	339	339	433	132	132	71	99	47	71	47	47	99
28	339	250	2,160	132	250	1,680	99	47	132	47	47	99
29	294	....	1,150	132	294	1,450	99	47	99	47	47	99
30	250	....	591	3,750	208	924	99	47	99	25	47	99
31	250	....	385	....	132	....	99	47	....	25	47	99

NOTE.—These daily discharges are based on a rating curve that is fairly well defined between 70 and 2,100 second-feet. There were floods on days for which no discharge is given and gage was not read.

Monthly discharge of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909.

[Drainage area, 144 square miles.]

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1907						
June, 19 days	....	....	693	4.81	3.40	C.
July	1,270	168	318	2.21	2.55	B.
August	294	99	186	1.29	1.49	B.
September, 29 days	....	99	172	1.19	1.28	C.
October	250	71	132	.917	1.06	B.
November	700	71	235	1.63	1.82	B.
December	339	99	205	1.42	1.64	B.
1908						
January, 30 days	....	132	316	2.19	2.44	C.
February	867	250	457	3.17	3.42	B.
March	2,010	250	492	3.42	3.94	A.
April	2,230	250	846	5.88	6.56	A.
May	433	132	251	1.74	2.01	B.
June	1,040	132	311	2.16	2.41	B.
July	250	47	130	.903	1.04	C.
August	250	47	115	.799	.92	C.
September	168	47	65.8	.457	.51	C.
October	168	47	70.5	.490	.56	C.
November	132	25	71.7	.498	.56	B.
December	1,330	71	699	4.85	5.59	A.

Monthly discharge of Middle Fork of Holston River at Chilhowie, Va., for 1907–1909—Continued.

Month	Discharge in second-feet				Run-off (depth in inches on drainage area)	Accuracy
	Maximum	Minimum	Mean	Per square mile		
1909						
January	867	168	419	2.91	3.36	A.
February	755	168	381	2.65	2.76	A.
March	2,160	208	521	3.62	4.17	A.
April	3,750	132	315	2.19	2.44	A.
May	1,150	99	347	2.41	2.78	A.
June	1,680	71	220	1.53	1.71	B.
July	484	99	140	.972	1.12	B.
August	385	47	92.7	.644	.74	B.
September	250	47	102	.708	.79	B.
October	132	25	72.2	.501	.58	C.
November	47	25	44.1	.306	.34	C.
December	99	47	71.5	.497	.57	C.
The year	3,750	25	227	1.58	21.36	

NORTH FORK OF HOLSTON RIVER AT SALTVILLE, VA.

Location.—At highway bridge just below alkali plant on a branch of the Norfolk & Western Railway, about half a mile northwest of Saltville.

Drainage area.—Not measured.

Records available.—June 11, 1907, to November 12, 1908.

Gage.—Chain attached to the highway bridge; read twice daily.

Discharge measurements.—Made from the bridge.

Channel and control.—Left bank high and not likely to overflow. Right bank will overflow at extremely high stages. Bed of stream, gravel. Control practically permanent during 1907-8.

Extremes of discharge.—Maximum stage observed: 12.1 feet at 1 A. M., April 2, 1908; approximate discharge, 6,920 second-feet. Minimum stage observed: 1.5 feet, October 5, 1908; discharge, 33 second-feet.

Winter flow.—No information. Discharge relation probably not affected by ice.

Accuracy.—Results good except possibly for extremely high stages.

Coöperation.—Station maintained by United States Geological Survey in coöperation with United States Forest Service.

Discharge measurements of North Fork of Holston River at Saltville, Va., in 1907–8.

Date	Made by	Gage height	Discharge	Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*			*Feet*	*Sec.-ft.*
1907							
June 12	W. E. Hall	5.86	1,940	Sept. 10	B. M. Hall, Jr	1.61	48
Aug. 10	B. M. Hall, Jr	2.10	133				
Aug. 14	do	1.97	84	1908			
Aug. 14	W. E. Hall	1.97	94	Feb. 22	W. E. Hall	3.35	406
Sept. 10	B. M. Hall, Jr	1.61	46	July 3	F. P. Thomas	2.29	174
				July 3	W. E. Hall	2.29	177

Daily gage height, in feet, of North Fork of Holston River at Saltville, Va., for 1907–8.

[T. A. Hockett, observer.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	......	......	......	2.55	2.3	2.0	2.9
2	......	......	......	......	......	......	......	......	2.1	2.2	2.4	2.8
3	......	......	......	......	......	......	......	......	2.05	2.1	2.9	2.75
4	......	......	......	......	......	......	......	......	2.0	2.25	2.8	2.55
5	......	......	......	......	......	......	......	......	1.9	2.4	2.55	2.5
6	......	......	......	......	......	......	......	......	1.85	2.5	2.5	2.35
7	......	......	......	......	......	......	......	......	1.8	2.35	2.3	2.3
8	......	......	......	......	......	......	......	......	1.8	2.4	2.3	2.3
9	......	......	......	......	......	......	......	......	1.75	2.25	2.2	2.25
10	......	......	......	......	......	......	......	......	1.7	2.15	5.2	4.6
11	......	......	......	......	......	8.5	......	......	2.3	2.1	4.7	5.9
12	......	......	......	......	......	5.8	......	......	2.5	2.05	4.0	4.3
13	......	......	......	......	......	9.5	......	......	2.35	2.0	3.4	3.7
14	......	......	......	......	......	9.8	......	2.0	2.05	1.95	3.05	3.8
15	......	......	......	......	......	6.0	......	1.9	2.0	1.9	2.8	3.9
16	......	......	......	......	......	4.9	......	1.9	1.9	1.8	2.45	3.8
17	......	......	......	......	......	4.2	......	1.95	1.85	1.8	2.4	3.75
18	......	......	......	......	......	3.85	......	2.45	1.6	1.8	3.6	3.65
19	......	......	......	......	......	3.6	......	2.45	2.75	1.8	3.8	3.35
20	......	......	......	......	......	3.6	......	2.4	2.35	1.8	3.6	3.15
21	......	......	......	......	......	3.5	......	2.1	2.05	1.8	3.55	3.05
22	......	......	......	......	......	3.4	......	2.1	2.55	1.8	3.4	3.0
23	......	......	......	......	......	3.3	......	2.0	5.4	1.8	3.35	2.9
24	......	......	......	......	......	3.8	......	2.25	4.4	1.8	4.6	2.9
25	......	......	......	......	......	3.2	......	2.3	3.35	1.8	4.8	2.75
26	......	......	......	......	......	3.05	......	2.25	3.0	1.8	4.2	2.7
27	......	......	......	......	......	2.9	......	2.2	2.65	1.8	3.8	2.6
28	......	......	......	......	......	2.8	......	2.2	2.5	1.9	3.4	2.6
29	......	......	......	......	......	......	......	2.1	2.5	1.9	3.1	3.45
30	......	......	......	......	......	......	......	2.0	2.4	1.9	3.0	4.4
31	......	......	......	......	......	......	......	2.0	......	1.9	......	5.2
1908												
1	4.0	3.05	3.7	7.9	3.2	3.0	2.6	1.75	1.85	1.6	2.7	......
2	3.65	3.15	5.0	9.7	3.15	2.85	2.4	1.7	1.75	1.6	2.5	......
3	3.2	3.05	4.5	5.9	3.0	2.7	2.35	1.75	1.7	1.6	2.2	......
4	3.2	3.15	4.2	4.9	3.0	4.3	2.3	1.7	1.7	1.55	2.15	......
5	3.5	3.15	4.4	4.2	3.0	5.7	2.45	1.7	2.8	1.5	2.05	......
6	3.15	3.45	6.4	6.0	2.95	4.2	2.55	1.7	3.85	1.55	2.0	......
7	3.05	3.65	5.2	3.65	5.7	3.7	2.45	1.7	2.75	1.55	2.05	......
8	3.65	3.45	4.4	3.5	5.4	3.3	2.3	1.8	2.25	1.6	2.0	......
9	3.35	3.25	4.0	3.4	4.5	3.15	2.15	2.15	2.15	1.65	1.9	......
10	3.0	3.05	3.6	3.3	4.1	2.95	2.1	2.3	2.05	1.65	1.85	......
11	2.7	3.35	3.4	3.35	3.8	2.8	2.0	2.05	2.0	1.9	2.1	......
12	8.6	4.8	3.9	3.55	3.55	2.7	2.0	2.0	1.9	2.45	2.5	......
13	5.4	5.8	3.75	3.4	3.35	2.6	1.9	1.85	1.8	2.15	......	......
14	4.6	6.4	3.8	3.25	3.15	2.6	1.9	1.75	1.75	1.8	......	......
15	4.0	7.6	3.7	3.1	3.0	3.4	2.15	1.7	1.7	1.9	......	......
16	3.85	6.6	3.6	3.1	3.0	3.1	2.25	1.7	1.65	1.7	......	......
17	3.65	4.6	3.5	3.05	2.9	2.85	2.1	1.7	1.6	1.75	......	......
18	3.25	4.2	3.5	3.0	2.8	2.55	2.05	1.75	1.65	1.7	......	......
19	3.15	3.85	3.8	3.0	3.8	2.5	2.0	1.75	1.65	1.75	......	......
20	3.0	3.65	4.6	2.95	4.8	2.45	1.9	1.85	1.65	1.6	......	......
21	3.15	3.25	4.2	2.9	5.0	2.4	1.95	1.7	1.65	1.6	......	......
22	3.25	3.2	4.2	2.85	4.2	3.7	1.95	1.75	1.6	1.55	......	......
23	3.4	3.2	4.2	2.75	3.85	6.6	1.9	1.85	1.6	1.55	......	......
24	3.3	3.0	4.4	2.7	3.5	4.2	1.8	1.9	1.55	1.6	......	......
25	3.15	3.0	4.5	2.9	3.2	3.35	1.8	1.95	1.55	1.55	......	......

Daily gage height, in feet, of North Fork of Holston River at Saltville, Va., for 1907–8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
26	2.95	3.2	4.0	5.2	2.95	3.1	1.85	2.15	1.55	2.0	......	......
27	3.85	3.1	3.8	4.0	3.4	2.85	1.9	2.4	1.6	1.9	......	......
28	3.65	2.95	3.5	3.4	3.25	2.55	1.8	2.1	1.65	1.8	......	......
29	3.65	2.9	3.4	3.35	3.25	2.5	1.85	2.0	1.65	2.25	......	......
30	3.25	......	3.4	3.2	3.6	2.7	1.8	1.9	1.65	3.7	......	......
31	3.05	......	3.4	......	3.25	......	1.8	1.9	......	3.25	......	......

NOTE.—Gage destroyed or stolen on night of June 28, 1907, replaced Aug. 14, 1907. Gage stolen Nov. 13, 1908, and station discontinued.

Daily discharge, in second-feet, of North Fork of Holston River at Saltville, Va., for 1907–8.

Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907								1907							
1	......	......	......	210	160	106	290	16	1,200	......	90	90	75	190	580
2	......	......	......	123	141	180	266	17	770	......	98	82	75	180	560
3	......	......	......	114	123	290	254	18	602	......	190	46	75	500	520
4	......	......	......	106	150	266	210	19	500	......	190	254	75	580	415
5	......	......	......	90	180	210	200	20	500	......	180	170	75	500	355
6	......	......	......	82	200	200	170	21	465	......	123	114	75	482	328
7	......	......	......	75	170	160	160	22	430	......	123	210	75	430	315
8	......	......	......	75	180	160	160	23	400	......	106	1,560	75	415	290
9	......	......	......	68	150	141	150	24	580	......	150	880	75	1,000	290
10	......	......	......	60	132	1,420	1,000	25	370	......	160	415	75	1,130	254
11	4,040	......	......	160	123	1,060	1,960	26	328	......	150	315	75	770	243
12	1,880	......	......	200	114	670	825	27	290	......	141	232	75	580	221
13	4,840	......	......	170	106	430	540	28	266	......	141	200	90	430	221
14	5,080	......	106	114	98	328	580	29	......	......	123	200	90	340	448
15	2,040	......	90	106	90	266	625	30	......	......	106	180	90	315	880
								31	......	......	106	......	90	......	1,420

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
1	670	328	540	3,560	370	315	221	68	82	46	243	......
2	520	355	1,270	5,000	355	278	180	60	68	46	200	......
3	370	328	940	1,960	315	243	170	68	60	46	141	......
4	370	355	770	1,200	315	825	160	60	60	40	132	......
5	465	355	880	770	315	1,800	190	60	266	33	114	......
6	355	448	2,360	670	302	770	210	60	602	40	106	......
7	328	520	1,420	520	1,800	540	190	60	254	40	114	......
8	520	448	880	465	1,560	400	160	75	150	46	106	......
9	415	385	670	430	940	355	132	132	132	53	90	......
10	400	328	500	400	720	302	123	160	114	53	82	......
11	243	415	430	415	580	266	106	114	106	90	123	......
12	4,120	1,130	625	428	482	243	106	106	90	190	200	......
13	1,560	1,880	560	430	415	221	90	82	75	132	......	......
14	1,000	2,360	580	385	355	221	90	68	68	75	......	......
15	670	3,320	540	340	315	430	132	60	60	90	......	......

Daily discharge, in second-feet, of North Fork of Holston River at Saltville, Va., for 1907–8—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
16	602	2,520	500	340	315	340	150	60	53	60	......	......
17	520	1,000	465	328	290	278	123	60	46	68	......	......
18	385	770	465	315	266	210	114	68	53	60	......	......
19	355	602	580	315	580	200	106	68	53	68	......	......
20	315	520	1,000	302	1,130	190	90	82	53	46	......	......
21	355	385	770	290	1,270	180	98	60	53	46	......	......
22	385	370	770	278	770	540	98	68	46	40	......	......
23	430	370	770	254	602	2,520	90	82	46	40	......	......
24	400	315	880	243	465	770	75	90	40	46	......	......
25	355	315	940	290	370	415	75	98	40	40	......	......
26	302	370	670	1,420	302	340	82	132	40	106	......	......
27	602	340	580	670	430	278	90	180	46	90	......	......
28	520	302	465	430	385	210	75	123	53	75	......	......
29	520	290	430	415	385	200	82	106	53	150	......	......
30	385	......	430	370	500	243	75	90	53	540	......	......
31	328	......	430	......	385	......	75	90	......	385	......	......

NOTE. Discharge determined from a rating curve fairly well defined below 2,500 second-feet.

Monthly discharge of North Fork of Holston River at Saltville, Va., for 1907–8.

Month	Discharge in second-feet			Accuracy
	Maximum	Minimum	Mean	
1907				
June 11–28	5,080	266	1,370	B.
August 14–31	190	90	132	B.
September	1,560	46	223	B.
October	200	75	109	B.
November	1,420	106	458	B.
December	1,960	150	475	B.
1908				
January	4,120	243	605	B.
February	3,320	290	739	B.
March	2,360	430	745	B.
April	5,000	243	776	B.
May	1,800	266	567	B.
June	2,520	180	471	B.
July	221	75	121	B.
August	180	60	86.8	B.
September	602	40	97.2	B.
October	540	33	92.9	B.
November 1–12	243	82	138	B.

CLINCH RIVER AT CLINCHPORT, VA.

Location.—About 500 feet above the Virginia & Southwestern Railway bridge at Clinchport, a short distance below mouth of Stock Creek, and about 1½ miles above Copper Creek.

Drainage area.—Not measured.

Records available.—June 7, 1907, to December 31, 1909.

Gage.—Vertical staff spiked to sycamore tree on right bank; read once daily.

Discharge measurements.—Made from railroad bridge.

Channel and control.—Banks high and not likely to overflow; bed composed of rock and mud. Control changes slightly.

Extremes of discharge.—Maximum stage recorded: 19.5 feet, June 14, 1907; discharge not computed. Minimum stage recorded: 0.4 foot in November and December, 1909; discharge, 134 second-feet.

Winter flow.—No information. Discharge relation probably not affected by ice.

Accuracy.—Records fair.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the United States Forest Service.

Discharge not estimated for high stages because of lack of discharge measurements.

Discharge measurements of Clinch River at Clinchport, Va., in 1907–1909.

Date	Made by	Gage height	Discharge
		Feet	*Sec.-ft.*
1907			
Aug. 15...	W. E. Hall.........	1.30	757
Aug. 15...	B. M. Hall, Jr.....	1.30	734
Sept. 7....	.....do	.81	430
1908			
Feb. 24 ...	W. E. Hall.........	2.10	1,530
July 2....	F. P. Thomas......	1.14	664
July 2....	W. E. Hall.........	1.14	655
1909			
Sept. 22..	E. H. Swett........	.70	275

Daily gage height, in feet, of Clinch River at Clinchport, Va., for 1907–1909.

[C. R. Lane and J. W. Morrison, observers.]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	......	......	......	......	......	......	1.9	1.6	0.8	1.0	0.7	1.9
2	......	......	......	......	......	......	1.5	2.6	.9	.9	.9	1.7
3	......	......	......	......	......	......	1.3	1.6	1.2	.8	2.5	1.6
4	......	......	......	......	......	......	1.2	1.4	1.4	.8	1.9	1.5
5	......	......	......	......	......	......	1.1	1.1	1.0	.9	1.5	1.4
6	......	......	......	......	......	......	1.0	1.4	.9	1.0	1.3	1.3
7	......	......	......	......	......	2.0	1.2	1.9	.8	1.0	1.2	1.2
8	......	......	......	......	......	2.3	1.1	1.7	1.0	1.1	1.2	1.1
9	......	......	......	......	......	7.2	1.0	1.7	.9	1.1	1.1	1.1
10	......	......	......	......	......	4.6	1.0	2.0	.8	1.0	4.2	1.3
11	......	......	......	......	......	4.8	1.1	1.5	1.6	.9	10.0	1.8
12	......	......	......	......	......	8.5	1.2	1.3	1.4	.8	4.9	3.1
13	......	......	......	......	......	5.6	1.6	1.2	1.3	.8	3.4	2.5
14	......	......	......	......	......	18.8	2.2	1.8	1.2	.8	2.7	2.2
15	......	......	......	......	......	10.0	2.0	1.4	1.0	.7	2.3	2.1
16	......	......	......	......	......	5.6	1.6	1.2	.9	.7	1.9	2.3
17	......	......	......	......	......	4.2	1.5	1.3	.8	.7	1.7	2.1
18	......	......	......	......	......	3.3	1.3	2.7	.8	.6	1.8	2.0
19	......	......	......	......	......	2.9	1.2	3.0	.7	.6	2.6	1.9
20	......	......	......	......	......	2.6	1.1	2.2	.7	.6	2.9	1.7
21	......	......	......	......	......	2.3	1.0	2.1	.7	.6	2.6	1.6
22	......	......	......	......	......	2.2	.9	1.7	1.3	.6	2.3	1.5
23	......	......	......	......	......	1.9	.8	1.6	2.1	.6	2.1	2.2
24	......	......	......	......	......	1.9	.8	1.5	2.3	.6	8.0	3.7
25	......	......	......	......	......	2.0	1.7	1.5	2.1	.6	6.5	3.4
26	......	......	......	......	......	1.7	1.6	1.4	1.6	.5	4.5	2.8
27	......	......	......	......	......	1.6	1.4	1.4	1.3	.6	3.5	2.4
28	......	......	......	......	......	1.4	1.7	1.2	1.1	.7	2.9	2.2
29	......	......	......	......	......	1.2	1.3	1.1	1.1	.6	2.5	2.0
30	......	......	......	......	......	2.9	2.2	1.0	1.0	.6	2.1	4.5
31	......	......	......	......	......	......	1.9	.9	......	.6	......	7.3
1908												
1	4.7	2.2	3.0	2.8	2.0	1.9	1.2	.8	.6	.5	1.4	1.4
2	3.7	2.9	4.3	11.3	1.9	1.5	1.2	.7	.6	.5	1.1	1.8
3	3.1	2.4	4.5	8.2	1.9	1.4	1.1	.6	.5	.5	1.0	1.8
4	2.6	2.2	3.8	5.6	1.9	1.3	1.0	.6	.5	.5	.8	1.4
5	3.3	2.3	3.4	4.2	1.8	1.6	1.0	.6	.6	.4	.8	1.4
6	4.0	3.5	6.6	3.5	1.9	2.5	1.0	.6	3.0	.4	.7	1.3
7	3.5	4.9	5.9	3.1	2.3	1.9	1.2	.8	3.7	.4	.7	2.5
8	3.1	4.2	4.4	2.7	3.1	1.6	1.6	.8	2.3	.4	.6	4.3
9	2.7	3.4	3.5	2.5	2.8	1.4	1.2	1.0	1.7	.4	.6	3.9
10	2.3	2.9	3.2	2.3	2.5	1.3	1.1	1.1	1.3	.7	.6	2.7
11	2.1	3.2	2.8	2.2	2.2	1.3	1.0	1.6	1.1	1.1	.7	2.2
12	3.9	3.7	3.4	2.3	2.0	1.2	.9	1.1	1.0	.8	1.5	3.3
13	7.4	5.2	3.9	2.5	1.8	1.1	.8	.9	.9	.7	1.7	3.4
14	4.9	5.5	3.7	2.3	1.7	1.0	.8	.8	.8	.6	1.4	2.9
15	3.7	6.9	3.4	2.2	1.5	1.1	1.6	.7	.8	.6	1.3	2.6
16	3.3	8.0	3.1	2.1	1.5	3.6	1.0	.8	.7	.6	1.2	2.2
17	2.9	5.4	2.9	2.0	1.4	2.5	1.2	.8	.7	.5	1.2	1.9
18	2.7	4.1	4.7	1.9	1.4	1.8	1.0	1.2	.7	.4	1.2	1.7
19	2.5	3.4	3.7	1.9	1.4	1.4	1.0	1.5	.6	.4	1.3	1.6
20	2.3	3.0	5.0	1.9	1.9	1.2	.9	1.2	.6	.4	1.3	1.6
21	2.2	2.7	4.9	1.8	3.2	1.6	.8	1.1	.6	.4	1.3	1.6
22	2.1	2.4	4.3	1.7	2.7	1.7	.7	1.9	.6	.4	1.2	1.7
23	2.1	2.2	4.2	1.6	2.4	7.7	.7	2.2	.6	.5	1.1	5.0
24	2.0	2.1	4.6	1.5	2.2	3.7	.6	1.7	.5	.7	1.0	4.2
25	1.9	2.0	4.9	1.7	2.1	2.8	.7	1.3	.5	1.0	1.0	3.4

Daily gage height, in feet, of Clinch River at Clinchport, Va., for 1907–1909—Contd.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908												
26	1.8	2.2	4.1	4.2	2.0	2.1	.7	1.0	.5	.8	.9	3.7
27	2.3	2.8	3.4	3.6	1.9	1.7	.7	.9	.5	.7	.9	5.0
28	3.7	2.6	3.0	2.9	1.9	1.5	.7	.8	.5	.7	.8	3.6
29	3.1	2.4	2.7	2.4	2.0	1.3	.7	.8	.5	.9	.8	3.0
30	2.6	....	2.6	2.1	2.9	1.3	1.1	.8	.5	1.1	.9	2.8
31	2.2	....	2.4	....	2.4	....	1.0	.7	....	1.3	....	3.0
1909												
1	3.1	1.4	2.9	3.1	9.0	1.0	2.8	2.3	0.8	0.6	0.6	0.4
2	3.0	1.3	2.5	2.7	8.5	1.3	2.5	3.2	.8	.6	.6	.4
3	2.6	1.6	2.3	2.5	6.7	1.1	2.3	3.0	.7	.6	.6	.4
4	2.3	1.5	2.4	2.2	4.3	3.3	1.5	2.3	.6	.6	.6	.4
5	2.4	1.5	2.4	2.0	3.8	2.8	1.4	1.6	.5	.5	.6	.4
6	2.9	1.7	3.9	1.9	3.0	2.3	1.3	1.6	.5	.5	.6	.4
7	2.7	2.0	4.5	1.9	2.6	1.9	1.4	1.5	.5	.5	.6	.4
8	2.4	2.2	4.4	2.0	2.4	1.6	1.3	1.5	.7	.5	.6	.5
9	2.2	2.2	3.7	1.8	2.1	3.3	3.5	1.4	.7	.5	.5	.5
10	2.0	6.3	5.9	1.7	2.7	4.8	3.0	1.2	.7	.5	.5	.5
11	1.8	6.6	7.7	1.6	3.2	3.5	2.3	1.1	.7	.5	.5	.5
12	1.7	4.4	5.0	1.5	3.0	3.3	2.1	1.0	.9	.5	.5	.5
13	1.6	3.4	4.0	1.4	2.7	3.0	2.5	1.0	.7	.5	.5	.8
14	1.6	2.9	4.5	1.5	2.3	6.5	5.3	1.0	.6	.5	.4	.8
15	2.9	2.7	4.2	1.5	2.1	5.6	4.1	1.0	.6	.6	.4	.8
16	4.0	3.8	3.7	1.5	1.9	4.2	2.9	2.5	.6	.6	.4	.6
17	6.2	4.5	3.2	1.4	1.8	3.8	5.9	2.5	.8	.6	.4	.6
18	5.3	3.8	2.8	1.3	1.7	3.5	3.9	2.3	.7	.6	.4	.5
19	4.1	3.2	2.5	1.2	1.5	3.2	2.4	2.1	.6	.6	.4	.5
20	3.3	3.7	2.3	1.2	1.5	2.0	2.0	2.6	.6	.6	.4	.5
21	2.8	3.4	2.2	1.4	1.7	2.1	1.6	1.3	.6	.6	.4	.5
22	2.4	3.5	2.1	1.9	1.6	1.9	1.5	1.0	.8	.6	.4	.5
23	2.2	5.0	2.5	2.8	1.5	2.3	1.4	1.0	.8	.6	.4	.5
24	2.0	3.6	2.3	4.0	1.4	2.6	1.4	.8	.8	.6	.4	.5
25	1.8	6.5	3.6	3.5	1.4	3.2	1.3	1.1	.7	.6	.4	.5
26	1.8	5.3	6.2	2.8	1.3	2.6	1.2	1.1	.6	.6	.4	.5
27	2.1	4.1	4.7	2.5	1.4	2.0	1.3	.8	.6	.6	.4	.5
28	2.1	3.4	5.8	2.2	1.2	2.3	1.3	1.0	.6	.6	.4	.5
29	2.0	....	6.8	2.0	1.2	2.1	1.2	.8	.6	.6	.4	.5
30	1.9	....	4.9	2.3	1.1	2.4	1.2	.8	.6	.6	.4	.5
31	1.8	....	3.8	....	1.1	....	1.4	.8	....	.6	....	.5

Daily discharge, in second-feet, of Clinch River at Clinchport, Va., for 1907–1909.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
1	....	....	....	....	....	....	1,310	1,010	420	545	360	1,310
2	....	....	....	....	....	....	920	....	480	480	480	1,100
3	....	....	....	....	....	....	755	1,010	680	420	2,050	1,010
4	....	....	....	....	....	....	680	835	835	420	1,310	920
5	....	....	....	....	....	....	610	610	545	480	920	835
6	....	....	....	....	....	....	545	835	480	545	755	755
7	....	....	....	....	....	1,420	680	1,310	420	545	680	680
8	....	....	....	....	....	1,780	610	1,100	545	610	680	610
9	....	....	....	....	....	....	545	1,100	480	610	610	610
10	....	....	....	....	....	....	545	1,420	420	545	....	755

Daily discharge, in second-feet, of Clinch River at Clinchport, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907												
11	......	......	......	......	......	......	610	920	1,010	480	......	1,200
12	......	......	......	......	......	......	680	755	835	420	......	......
13	......	......	......	......	......	......	1,010	680	755	420	......	2,050
14	......	......	......	......	......	......	1,660	1,200	680	420	......	1,660
15	......	......	......	......	......	......	1,420	835	545	360	1,780	1,540
16	......	......	......	......	......	......	1,010	680	480	360	1,310	1,780
17	......	......	......	......	......	......	920	755	420	360	1,100	1,540
18	......	......	......	......	......	......	755	......	420	305	1,200	1,420
19	......	......	......	......	......	......	680	......	360	305	......	1,310
20	......	......	......	......	......	......	610	1,660	360	305	......	1,100
21	......	......	......	......	......	1,780	545	1,540	360	305	......	1,010
22	......	......	......	......	......	1,660	480	1,100	755	305	1,780	920
23	......	......	......	......	......	1,510	420	1,010	1,540	305	1,540	1,660
24	......	......	......	......	......	1,310	420	920	1,780	305	......	......
25	......	......	......	......	......	1,420	1,110	920	1,540	305	......	......
26	......	......	......	......	......	1,100	1,010	835	1,010	250	......	......
27	......	......	......	......	......	1,010	835	835	755	305	......	1,910
28	......	......	......	......	......	835	1,100	680	610	360	......	1,660
29	......	......	......	......	......	680	755	610	610	305	2,050	1,420
30	......	......	......	......	......	......	1,660	545	545	305	1,540	......
31	......	......	......	......	......	......	1,310	480	......	305	......	......
1908												
1	......	1,660	......	......	1,420	1,310	680	420	305	250	835	835
2	......	......	......	......	1,310	920	680	360	305	250	610	1,200
3	......	1,910	......	......	1,310	835	610	305	250	250	545	1,200
4	......	1,660	......	......	1,310	755	545	305	250	250	420	835
5	......	1,780	......	......	1,200	1,010	545	305	305	200	420	835
6	......	......	......	......	1,310	2,050	545	305	......	200	360	755
7	......	......	......	......	1,780	1,310	680	420	......	200	360	2,050
8	......	......	......	......	......	1,010	1,010	420	1,780	200	305	......
9	......	......	......	2,050	......	835	680	545	1,100	200	305	......
10	1,780	......	......	1,780	2,050	755	610	610	755	360	305	......
11	1,540	......	......	1,660	1,660	755	545	1,010	610	610	360	1,660
12	......	......	......	1,780	1,420	680	480	610	545	420	920	......
13	......	......	......	2,050	1,200	610	420	480	480	360	1,100	......
14	......	......	......	1,780	1,100	545	420	420	420	305	835	......
15	......	......	......	1,660	920	610	1,010	360	420	305	755	......
16	......	......	......	1,540	920	......	545	420	360	305	680	1,660
17	......	......	......	1,420	835	2,050	680	420	360	250	680	1,310
18	......	......	......	1,310	835	1,200	545	680	360	200	680	1,100
19	2,050	......	......	1,310	835	835	545	920	305	200	755	1,010
20	1,780	......	......	1,310	1,310	680	480	680	305	200	755	1,010
21	1,660	......	......	1,200	......	1,010	420	610	305	200	755	1,010
22	1,540	1,910	......	1,100	......	1,100	360	1,310	305	200	680	1,100
23	1,540	1,660	......	1,010	1,910	......	360	1,660	305	250	610	......
24	1,420	1,540	......	920	1,660	......	305	1,100	250	360	545	......
25	1,310	1,420	......	1,100	1,540	......	360	755	250	545	545	......
26	1,200	1,660	......	......	1,420	1,540	360	545	250	420	480	......
27	1,780	......	......	......	1,310	1,100	360	480	250	360	480	......
28	......	......	......	......	1,310	920	360	420	250	360	420	......
29	......	1,910	......	1,910	1,420	755	360	420	250	480	420	......
30	......	......	......	1,540	......	755	610	420	250	610	480	......
31	1,660	......	1,910	......	1,910	......	545	360	......	755	......	......
1909												
1	......	750	......	......	......	455	......	1,680	330	225	255	134
2	......	670	1,920	......	......	670	1,920	......	330	225	225	134
3	......	925	1,680	1,920	......	525	1,680	......	275	225	225	134
4	1,680	835	1,800	1,560	......	......	835	1,680	225	225	225	134
5	1,800	835	1,800	1,340	......	......	750	925	178	178	225	134

Daily discharge, in second-feet, of Clinch River at Clinchport, Va., for 1907–1909—Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909												
6	....	1,020	....	1,230	....	1,680	670	925	178	178	225	134
7	....	1,340	....	1,230	....	1,230	750	835	178	178	225	134
8	1,800	1,560	....	1,340	1,800	925	670	835	275	178	225	178
9	1,560	1,560	....	1,120	1,450	....	....	750	275	178	178	178
10	1,340	....	....	1,020	....	....	....	595	275	178	178	178
11	1,120	....	....	925	....	....	1,680	525	275	178	178	178
12	1,020	....	....	835	....	....	1,450	455	390	178	178	178
13	925	....	....	750	....	....	1,920	455	275	178	178	330
14	925	....	....	835	1,680	....	....	455	225	178	134	330
15	....	....	....	835	1,450	....	....	455	225	225	134	330
16	....	....	....	835	1,230	....	....	1,920	225	225	134	225
17	....	....	....	750	1,120	....	....	1,920	330	225	134	225
18	....	....	....	670	1,020	....	....	1,680	275	225	134	178
19	....	....	1,920	595	835	....	1,800	1,450	225	225	134	178
20	....	....	1,680	595	835	1,340	1,340	....	225	225	134	178
21	....	....	1,560	750	1,020	1,450	925	670	225	225	134	178
22	1,800	....	1,450	1,230	925	1,230	835	455	330	225	134	178
23	1,560	....	1,920	....	835	1,680	750	455	330	225	134	178
24	1,340	....	1,680	....	750	....	750	330	330	225	134	178
25	1,120	....	....	....	750	....	670	525	275	225	134	178
26	1,120	....	....	....	670	....	595	525	225	225	134	178
27	1,450	....	....	1,920	750	1,340	670	330	225	225	134	178
28	1,450	....	....	1,560	595	1,680	670	455	225	225	134	178
29	1,340	....	....	1,340	595	1,450	595	330	225	225	134	178
30	1,230	....	....	1,680	525	1,800	595	330	225	225	134	178
31	1,120	....	....	....	525	....	750	330	....	225	....	178

NOTE.—These discharges are based on rating curves which are applicable as follows: June 7, 1907, to December 31, 1908, well defined between discharges 200 and 1,600 second-feet; January 1 to December 31, 1909, not well defined. For all missing days June 7, 1907, to December 31, 1908, the discharge was greater than 2,100 second-feet. For all missing days January 1 to December 31, 1909, the discharge was greater than 1,900 second-feet.

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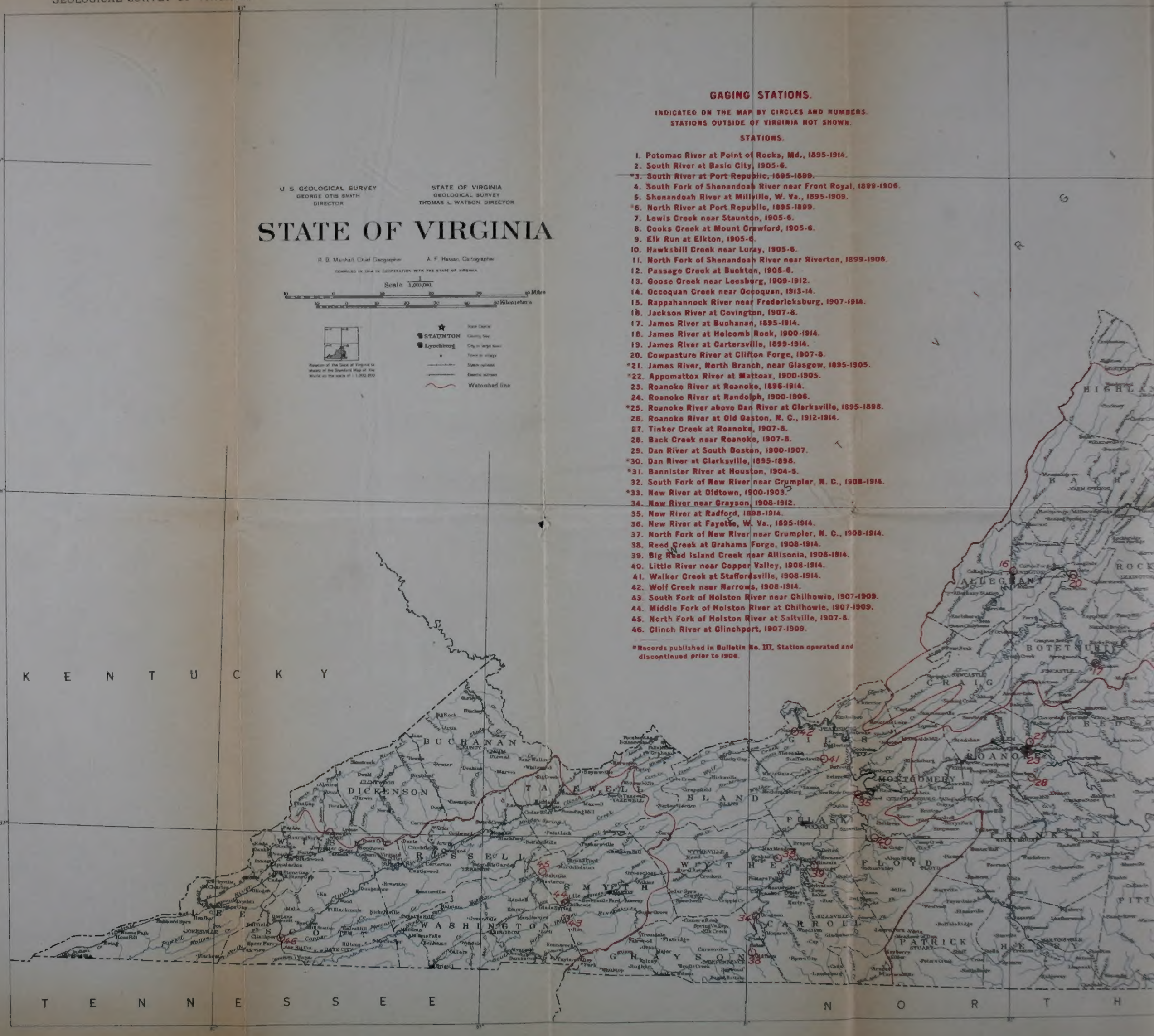

U S GEOLOGICAL SURVEY
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STATE OF VIRGINIA

R. B. Marshall, Chief Geographer
A. F. Hassan, Cartographer

COMPILED IN 1914 IN COOPERATION WITH THE STATE OF VIRGINIA

Scale $\frac{1}{1,000,000}$

GAGING STATIONS.

INDICATED ON THE MAP BY CIRCLES AND NUMBERS.
STATIONS OUTSIDE OF VIRGINIA NOT SHOWN.

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1. Potomac River at Point of Rocks, Md., 1895-1914.
2. South River at Basic City, 1905-6.
*3. South River at Port Republic, 1895-1899.
4. South Fork of Shenandoah River near Front Royal, 1899-1906.
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*6. North River at Port Republic, 1895-1899.
7. Lewis Creek near Staunton, 1905-6.
8. Cooks Creek at Mount Crawford, 1905-6.
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10. Hawksbill Creek near Luray, 1905-6.
11. North Fork of Shenandoah River near Riverton, 1899-1906.
12. Passage Creek at Buckton, 1905-6.
13. Goose Creek near Leesburg, 1909-1912.
14. Occoquan Creek near Occoquan, 1913-14.
15. Rappahannock River near Fredericksburg, 1907-1914.
16. Jackson River at Covington, 1907-8.
17. James River at Buchanan, 1895-1914.
18. James River at Holcomb Rock, 1900-1914.
19. James River at Cartersville, 1899-1914.
20. Cowpasture River at Clifton Forge, 1907-8.
*21. James River, North Branch, near Glasgow, 1895-1905.
*22. Appomattox River at Mattoax, 1900-1905.
23. Roanoke River at Roanoke, 1896-1914.
24. Roanoke River at Randolph, 1900-1906.
*25. Roanoke River above Dan River at Clarksville, 1895-1898.
26. Roanoke River at Old Gaston, N. C., 1912-1914.
27. Tinker Creek at Roanoke, 1907-8.
28. Back Creek near Roanoke, 1907-8.
29. Dan River at South Boston, 1900-1907.
*30. Dan River at Clarksville, 1895-1898.
*31. Bannister River at Houston, 1904-5.
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*33. New River at Oldtown, 1900-1903.
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37. North Fork of New River near Crumpler, N. C., 1908-1914.
38. Reed Creek at Grahams Forge, 1908-1914.
39. Big Reed Island Creek near Allisonia, 1908-1914.
40. Little River near Copper Valley, 1908-1914.
41. Walker Creek at Staffordsville, 1908-1914.
42. Wolf Creek near Narrows, 1908-1914.
43. South Fork of Holston River near Chilhowie, 1907-1909.
44. Middle Fork of Holston River at Chilhowie, 1907-1909.
45. North Fork of Holston River at Saltville, 1907-8.
46. Clinch River at Clinchport, 1907-1909.

*Records published in Bulletin No. III. Station operated and discontinued prior to 1906.

BULLETIN X PLATE V